

College of Science

College of Science

Dean's Welcome

Welcome to the Purdue University College of Science. I am delighted that you are interested in our programs, and I welcome you to join us in making scientific breakthroughs that move the world forward.

I also welcome you to learn more about Purdue Science academics and opportunities, your many options for careers in science, and all about Purdue student life.

All of us at the College of Science look forward to welcoming you to the Boilermaker family. To get a sense of what it is really like to be here, there is no substitute for a visit to campus. Our recruiting office would love to host you, and our current students very much want to meet you and show you around. I also hope to meet you at a future Meet the Dean event. To learn more about your options for visiting and upcoming events, please call 765-494-1990 or e-mail sciencerecruiting@purdue.edu.

I extend my very best wishes to you as you embark on this exciting chapter in your life.

Hail Purdue!

Patrick J. Wolfe

Frederick L. Hovde Dean of Science and Miller Family Professor of Statistics

College of Science Administration: Go to information for this department.

Departmental Pages:

- Biological Sciences
- Chemistry
- Computer Sciences
- Earth, Atmospheric and Planetary Sciences
- Mathematics

- [Physics and Astronomy](#)
- [Statistics](#)

Admissions

[More Information](#)

Admission to Teacher Education

[Teacher Education Requirements](#)

Advising

[More Information](#)

College of Science

[Policy Information](#)

Contact Information

Mailing address:

Purdue University College of Science
150 N. University St
West Lafayette, IN 47907

Directories

- [Science Administration](#)
- [Office of Undergraduate Education](#)
- [Departments](#)
- [Science IT](#)

Phone and Fax:

Student Advising Office

- 765-494-1771 (office)
- 765-496-3015 (fax)

Science Administration

- 765-494-1729 (office)
- 765-494-1736 (fax)

Science IT Helpline

- 765-494-4488

College of Science Core Requirements

- College of Science Core: Composition and Presentation
- College of Science Core: Computing
- College of Science Core: Cultural Diversity (Language and Culture)
- College of Science Core: General Education
- College of Science Core: Great Issues in Science
- College of Science Core: Laboratory Science
- College of Science Core: Mathematics
- College of Science Core: Multidisciplinary
- College of Science Core: Statistics
- College of Science Core: Teambuilding and Collaboration
- College of Science: No Count Course List

College of Science Administration

About the Department of Science Administration

During their Purdue career, students will be able to take advantage of the many benefits the College of Science has to offer. From Nobel Prize-winning faculty to undergraduate research opportunities and study abroad opportunities to facilities found in the international spotlight, the College of Science is recognized and renowned.

Faculty

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Contact Individual College of Science Groups:

- Advising - email
- Graduate Education and International Programs - email
- Dean's Office - email
 - Speech/Appearance request form
- Research - email
- Academic Affairs - email
- Undergraduate Education - email
- Science Diversity - email
- Strategic Relations - email
- Recruiting - email
- K-12 Outreach - email
- Special Events & Alumni Relations - email
- Science Advancement - email
- Science IT - email

Baccalaureate

Interdisciplinary Science, BS (Biology)

About the Program

The interdisciplinary science major is designed to provide College of Science students with a broad base in the sciences. By combining a primary area of science study, an interdisciplinary science core, a supporting area of academic interest and the core curriculum shared by all College of Science programs, students explore how the disciplines of science come together to identify and solve scientific challenges. Students customize the major by selecting a departmental or interdepartmental primary area based in science and a supporting area that complements or enhances the primary area. This supporting area may be an approved minor from any college or school at the University or a concentration of 18 credits of courses with a unifying theme. There is a primary area representing each department in the College of Science, however, cross-disciplinary areas may be explored and added as appropriate. With the help of either a faculty member or an academic advisor, students are encouraged to petition for approval of their supporting area.

The Interdisciplinary Science Major is designed to give a student a broad base in the sciences with more depth in a Primary Area of Science and a Supporting Area, usually outside of Science. The Core courses are common across the major but the student customizes the major by selecting a departmental or interdepartmental Primary Area based in Science and a Supporting Area which may come from any college or school at the University. There is a Primary Area representing each department in the College of Science and cross-disciplinary areas will be explored and added as appropriate. Several Supporting Areas will be suggested and a student may petition for approval of others.

Students completing the interdisciplinary science major have gone on to a variety of careers - some in, and others out of, the world of science. These careers include medicine, law and other advanced-study professions, scientific sales, technical and scientific writing, computer programming and engineering.

Interdisciplinary Science Major Change (CODO) Requirements

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete

minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Degree Requirements

120 Credits Required

Departmental/Program Major Courses (67-81 credits)

Required Interdisciplinary Core Courses (34-47 credits)

Required Biology Courses (7-8 credits)

Choose one sequence below.

Select courses COULD satisfy Science for University Core.

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 13500 - First Year Biology Laboratory ♦
- BIOL 11000 - Fundamentals Of Biology I ♦
- BIOL 11100 - Fundamentals Of Biology II ♦

Required Chemistry Courses (4-10 credits)

Choose one option below.

Select courses COULD satisfy Science for University Core:

- CHM 12901 - General Chemistry With A Biological Focus
- CHM 13600 - General Chemistry Honors
- CHM 11500 - General Chemistry and
- CHM 11600 - General Chemistry
- CHM 12500 - Introduction To Chemistry I and
- CHM 12600 - Introduction To Chemistry II

Required Computing Option (3-4 credits)

Choose one of the following:

- CS 17700 - Programming With Multimedia Objects ♦
- CS 15900 - C Programming ♦
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Earth, Atmospheric, and Planetary Science Selective Courses (3-4 credits)

Choose one option below.

Select courses COULD satisfy Science for University Core:

- EAPS 10000 - Planet Earth
- EAPS 10900 - The Dynamic Earth
- EAPS 11100 - Physical Geology
- EAPS 22100 - Survey Of Atmospheric Science and
- EAPS 23000 - Laboratory In Atmospheric Science
- EAPS 22500 - Science Of The Atmosphere and
- EAPS 23000 - Laboratory In Atmospheric Science

Required Mathematics Courses (6-10 credits)

Choose one option below.

Satisfies Quantitative Reasoning for University Core:

Option I

- MA 16010 - Applied Calculus I
 - MA 16020 - Applied Calculus II
- ### Option II - Take one Calculus I and one Calculus II.
- MA 16100 - Plane Analytic Geometry And Calculus I or
 - MA 16500 - Analytic Geometry And Calculus I
 - MA 16200 - Plane Analytic Geometry And Calculus II or

- MA 16600 - Analytic Geometry And Calculus II

Required Physics Selective Courses (8 credits)

Choose one option below.

Select courses COULD satisfy Science for University Core:

Option I

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II

Option II

- PHYS 22000 - General Physics
- PHYS 22100 - General Physics

Option III

- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions

Option IV

- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Required Statistics Courses (3 credits)

Choose one option below.

- STAT 35000 - Introduction To Statistics
- STAT 50300 - Statistical Methods For Biology
- STAT 51100 - Statistical Methods

Required Biology Primary Area Courses (15-16 credits)

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- **BIOL 30000 - BIOLOGY SELECTIVE COURSE** - Choose one option.
- BIOL 32800 - Principles Of Physiology
- BIOL 39500 - Special Assignments (Macromolecules)
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43600 - Neurobiology
- BIOL 43800 - General Microbiology
- BIOL 36700 - Principles Of Development and
- BIOL 36701 - Principles Of Development Lab

Required Supporting Area Courses (18 credits)

MUST BE APPROVED BY COLLEGE. Please see your advisor for approval options.

Other Departmental/Program Course Requirements (15-37 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with Major Required Courses

MATHEMATICS - Met with Major Required Courses

STATISTICS - Met with Major Required Courses

COMPUTING - Met with Major Required Courses

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I
General Education Option II
General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (2-38 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 11000 - Fundamentals Of Biology I ♦
or
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ and
- BIOL 13500 - First Year Biology Laboratory ♦
- Required Mathematics Course: Calculus I - Credit Hours: 3.00 - 5.00
- Required Chemistry Course - Credit Hours: 4.00 - 5.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 0.00 - 1.00

15-18 Credits

Spring 1st Year

- BIOL 11100 - Fundamentals Of Biology II ♦ or
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

- Required Mathematics Course: Calculus II - Credit Hours: 3.00 - 5.00
- Required Chemistry Course - Credit Hours: 4.00 - 5.00

13-18 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- Supporting Area Course - Credit Hours: 3.00
- Elective - Credit Hours: 3.00 - 4.00

15-16 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

17 Credits

Fall 3rd Year

- STAT 35000 - Introduction To Statistics or
- STAT 50300 - Statistical Methods For Biology or
- STAT 51100 - Statistical Methods
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

- BIOL 28600 - Introduction To Ecology And Evolution
- COM 21700 - Science Writing And Presentation
- Required EAPS Selective Course - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

15-16 Credits

Fall 4th Year

- Biology Selective Course 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- Great Issues In Science - Credit Hours: 3.00
- Required Physics Selective Course: I - Credit Hours: 4.00
- Elective - Credit Hours: 2.00

15-16 Credits

Spring 4th Year

- Supporting Area Course - Credit Hours: 3.00
- Required Physics Selective Course: II - Credit Hours: 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

16-18 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)

ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Interdisciplinary Science, BS (Chemistry)

About the Program

The interdisciplinary science major is designed to provide College of Science students with a broad base in the sciences. By combining a primary area of science study, an interdisciplinary science core, a supporting area of academic interest and the core curriculum shared by all College of Science programs, students explore how the disciplines of science come together to identify and solve scientific challenges. Students customize the major by selecting a departmental or interdepartmental primary area based in science and a supporting area that complements or enhances the primary area. This supporting area may be an approved minor from any college or school at the University or a concentration of 18 credits of courses with a unifying theme. There is a primary area representing each department in the College of Science, however, cross-disciplinary areas may be explored and added as appropriate. With the help of either a faculty member or an academic advisor, students are encouraged to petition for approval of their supporting area.

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Interdisciplinary Science Major Change (CODO) Requirements

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College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Degree Requirements

120 Credits Required

Departmental/Program Major Courses (68-83 credits)

Required Interdisciplinary Core Courses (34-47 credits)

Required Biology Courses (7-8 Credits)

Choose one sequence below; select courses COULD satisfy Science for core.

- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 13500 - First Year Biology Laboratory

Required Chemistry Selective Courses (8-10 credits)

Choose one option below; select courses COULD satisfy Science for University Core:

- CHM 11500 - General Chemistry
- CHM 11600 - General Chemistry
- CHM 12500 - Introduction To Chemistry I
- CHM 12600 - Introduction To Chemistry II
- CHM 13600 - General Chemistry Honors
- CHM 12901 - General Chemistry With A Biological Focus + Pass Departmental Exam for CHM 11500

Required Computing Option (3-4 Credits)

Choose one of the following:

- CS 15900 - C Programming ♦
- CS 17700 - Programming With Multimedia Objects ♦
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Earth, Atmospheric, and Planetary Science Selective Courses (3-4 credits)

Choose one option below; select courses COULD satisfy Science for core.

- EAPS 10000 - Planet Earth
- EAPS 10900 - The Dynamic Earth
- EAPS 11100 - Physical Geology
- EAPS 22100 - Survey Of Atmospheric Science and
- EAPS 23000 - Laboratory In Atmospheric Science
- EAPS 22500 - Science Of The Atmosphere and
- EAPS 23000 - Laboratory In Atmospheric Science

Required Mathematics Courses (6-10 credits)

Choose one option below; satisfies Quantitative Reasoning for core.

- Option I - Take both courses.
- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- Option II - Choose one Calculus I & one Calculus II.
- MA 16100 - Plane Analytic Geometry And Calculus I or

- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Required Physics Selective Courses (8 credits)

Choose one option below; select courses COULD satisfy Science for core.

Option I

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II

Option II

- PHYS 22000 - General Physics
- PHYS 22100 - General Physics

Option III

- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions

Option IV

- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Required Statistics Course (3 credits)

Choose one of the following:

- STAT 30100 - Elementary Statistical Methods ♦
- STAT 35000 - Introduction To Statistics ♦
- STAT 50300 - Statistical Methods For Biology ♦
- STAT 51100 - Statistical Methods ♦

Required Chemistry Primary Area Courses (16-18 credits)

- CHM 24100 - Introductory Inorganic Chemistry
- CHM 37200 - Physical Chemistry

Organic Chemistry Lecture I (3-4 credits)

Choose one course in Organic Chemistry I.

- CHM 25500 - Organic Chemistry
- CHM 26100 - Organic Chemistry
- CHM 26505 - Organic Chemistry
- MCMP 20400 - Organic Chemistry I

Organic Chemistry Laboratory I (0-2 Credits)

Choose one Organic Chemistry Laboratory I course (students taking MCMP 20400 do not need an additional laboratory I course).

- CHM 25501 - Organic Chemistry Laboratory
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26600 - Organic Chemistry Laboratory
- CHM 26700 - Organic Chemistry Laboratory Honors

Organic Chemistry Lecture II (3-4 credits)

Choose one course in Organic Chemistry II.

- CHM 25600 - Organic Chemistry
- CHM 26200 - Organic Chemistry
- CHM 26605 - Organic Chemistry
- MCMP 20500 - Organic Chemistry II

Organic Chemistry Laboratory II (0-2 Credits)

Choose one Organic Chemistry Laboratory II course (students taking MCMP 20500 do not need an additional laboratory I course).

- CHM 25601 - Organic Chemistry Laboratory
- CHM 26400 - Organic Chemistry Laboratory
- CHM 26600 - Organic Chemistry Laboratory
- CHM 26800 - Organic Chemistry Laboratory Honors

Required Supporting Area Courses (18 credits)

MUST BE APPROVED BY COLLEGE. Please see your advisor for approval options.

Other Departmental/Program Course Requirements (15-37 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^ - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I

Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE[^] - Met with Required Courses

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with Required Courses

STATISTICS - Met with Required Courses

COMPUTING - Met with Required Courses

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

^{*}Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-37 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing
- Calculus Option I - Credit Hours: 3.00 - 5.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- Biology Selective I - Credit Hours: 4.00
- Elective - Credit Hours: 0.00 - 1.00

15-18 Credits

Spring 1st Year

- General Chemistry Selective II - Credit Hours: 4.00 - 5.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II - Credit Hours: 0.00 - 2.00
- Calculus II Option - Credit Hours: 3.00 - 5.00
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-18 Credits

Fall 2nd Year

- Organic Chemistry I with Lab - Credit Hours: 4.00 - 5.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Physics Selective I - Credit Hours: 4.00
- Elective - Credit Hours: 1.00

15-17 Credits

Spring 2nd Year

- Organic Chemistry II with Lab - Credit Hours: 4.00 - 5.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- Physics Selective II - Credit Hours: 4.00
- Elective - Credit Hours: 1.00

15-17 Credits

Fall 3rd Year

- STAT 30100 - Elementary Statistical Methods ♦ or
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 50300 - Statistical Methods For Biology ♦ or
- STAT 51100 - Statistical Methods ♦
- Supporting Area Course - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-16 Credits

Spring 3rd Year

- CHM 24100 - Introductory Inorganic Chemistry
- COM 21700 - Science Writing And Presentation
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- EAPS Selective Course - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00

16-18 Credits

Fall 4th Year

- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- CHM 37200 - Physical Chemistry
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

New Core

Interdisciplinary Science, BS (Computer Science)

About the Program

The interdisciplinary science major is designed to provide College of Science students with a broad base in the sciences. By combining a primary area of science study, an interdisciplinary science core, a supporting area of academic interest and the core curriculum shared by all College of Science programs, students explore how the disciplines of science come together to identify and solve scientific challenges. Students customize the major by selecting a departmental or interdepartmental primary area based in science and a supporting area that complements or enhances the primary area. This supporting area may be an approved minor from any college or school at the University or a concentration of 18 credits of courses with a unifying theme. There is a primary area representing each department in the College of Science, however, cross-disciplinary areas may be explored and added as appropriate.

With the help of either a faculty member or an academic advisor, students are encouraged to petition for approval of their supporting area.

The Interdisciplinary Science Major is designed to give a student a broad base in the sciences with more depth in a Primary Area of Science and a Supporting Area, usually outside of Science. The Core courses are common across the major but the student customizes the major by selecting a departmental or interdepartmental Primary Area based in Science and a Supporting Area which may come from any college or school at the University. There is a Primary Area representing each department in the College of Science and cross-disciplinary areas will be explored and added as appropriate. Several Supporting Areas will be suggested and a student may petition for approval of others.

Students completing the interdisciplinary science major have gone on to a variety of careers - some in, and others out of, the world of science. These careers include medicine, law and other advanced-study professions, scientific sales, technical and scientific writing, computer programming and engineering.

Interdisciplinary Science Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (72-81 credits)

Required Interdisciplinary Core Courses (38-47 credits)

Required Biology Courses (7-8 credits)

Choose one sequence below; select courses COULD satisfy Science for University Core.

- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 13500 - First Year Biology Laboratory

Required Chemistry Selective Courses (5-10 credits)

Choose one option below; select courses COULD satisfy Science for core.

- CHM 11500 - General Chemistry
- CHM 11600 - General Chemistry
- CHM 12500 - Introduction To Chemistry I
- CHM 12600 - Introduction To Chemistry II
- CHM 13600 - General Chemistry Honors
- CHM 12901 - General Chemistry With A Biological Focus

Required Computer Science Selective Courses (4 credits)

- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Earth, Atmospheric, and Planetary Science Selective Courses (3-4 credits)

Choose one option below; select courses COULD satisfy Science for core.

- EAPS 10000 - Planet Earth
- EAPS 10900 - The Dynamic Earth
- EAPS 11100 - Physical Geology
- EAPS 22100 - Survey Of Atmospheric Science and
- EAPS 23000 - Laboratory In Atmospheric Science
- EAPS 22500 - Science Of The Atmosphere and
- EAPS 23000 - Laboratory In Atmospheric Science

Required Mathematics Courses (8-10 credits)

Satisfies Quantitative Reasoning for core.

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Required Physics Selective Courses (8 credits)

Choose one option; select courses COULD satisfy Science for core.

Option I

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II

Option II

- PHYS 22000 - General Physics
- PHYS 22100 - General Physics

Option III

- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions

Option IV

- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Required Statistics Selective Courses (3 credits)

Choose one course below.

- STAT 35000 - Introduction To Statistics ♦
- STAT 35500 - Statistics For Data Science ♦
- STAT 51100 - Statistical Methods ♦

Required Computer Science Primary Area Courses (16 credits)

- CS 18200 - Foundations Of Computer Science
- CS 24000 - Programming In C
- CS 25000 - Computer Architecture
- CS 25100 - Data Structures And Algorithms
- CS Elective at or above 30000 level - Credit Hours: 3.00

Required Supporting Area Courses (18 credits)

MUST BE APPROVED BY COLLEGE

Other Departmental/Program Course Requirements (15-37 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

- **FIRST-YEAR COMPOSITION** – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)
 - ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- **TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)
- **TEAM-BUILDING & COLLABORATION*** - Credit Hours: 0.00 - 3.00
- **LANGUAGE & CULTURE^*** - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)
 - Language/Culture Option I
 - Language/Culture Option II
 - Language/Culture Option III
- **GREAT ISSUES IN SCIENCE** - Credit Hours: 3.00
- **MULTIDISCIPLINARY EXPERIENCE^*** - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)
- **LABORATORY SCIENCE** - Met with Required Courses
- **MATHEMATICS** (satisfies Quantitative Reasoning for core) - Met with Required Courses
- **STATISTICS** - Met with Required Courses
- **COMPUTING** - Met with Required Courses
- **GENERAL EDUCATION^** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00
 - General Education Option I
 - General Education Option II

General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (2-33 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- EAPS Selective Course - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 2.00

15-18 Credits

Spring 1st Year

- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00 - 4.00

14-16 Credits

Fall 2nd Year

- CS 18200 - Foundations Of Computer Science
- CS 24000 - Programming In C
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

15-16 Credits

Spring 2nd Year

- CS 25000 - Computer Architecture
- CS 25100 - Data Structures And Algorithms
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦ or
- STAT 51100 - Statistical Methods ♦
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-16 Credits

Fall 3rd Year

- COM 21700 - Science Writing And Presentation
- CS Elective 30000 level - Credit Hours: 3.00
- Physics Selective I - Credit Hours: 4.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- Elective - Credit Hours: 1.00

15-16 Credits

Spring 3rd Year

- Supporting Area Course - Credit Hours: 3.00
- Physics Selective II - Credit Hours: 4.00
- General Chemistry Selective - Credit Hours: 4.00 - 5.00

- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

15-16 Credits

Fall 4th Year

- Supporting Area Course - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 0.00 - 3.00
- Biology Selective I - Credit Hours: 4.00
- Great Issues Option: 3.00
- Elective - Credit Hours: 0.00 - 2.00

15-16 Credits

Spring 4th Year

- Science Core Selection - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II - Credit Hours: 2.00
- Elective - Credit Hours: 4.00

15-16 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Interdisciplinary Science, BS (Earth, Atmospheric, and Planetary Sciences)

About the Program

The interdisciplinary science major is designed to provide College of Science students with a broad base in the sciences. By combining a primary area of science study, an interdisciplinary science core, a supporting area of academic interest and the core curriculum shared by all College of Science programs, students explore how the disciplines of science come together to identify and solve scientific challenges. Students customize the major by selecting a departmental or interdepartmental primary area based in science and a supporting area that complements or enhances the primary area. This supporting area may be an approved minor from any college or school at the University or a concentration of 18 credits of courses with a unifying theme. There is a primary area representing each department in the College of Science, however, cross-disciplinary areas may be explored and added as appropriate. With the help of either a faculty member or an academic advisor, students are encouraged to petition for approval of their supporting area.

The Interdisciplinary Science Major is designed to give a student a broad base in the sciences with more depth in a Primary Area of Science and a Supporting Area, usually outside of Science. The Core courses are common across the major but the student customizes the major by selecting a departmental or interdepartmental Primary Area based in Science and a Supporting Area which may come from any college or school at the University. There is a Primary Area representing each department in the College of Science and cross-disciplinary areas will be explored and added as appropriate. Several Supporting Areas will be suggested and a student may petition for approval of others.

Students completing the interdisciplinary science major have gone on to a variety of careers - some in, and others out of, the world of science. These careers include medicine, law and other advanced-study professions, scientific sales, technical and scientific writing, computer programming and engineering.

Interdisciplinary Science Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (70-80 credits)

Required Interdisciplinary Core Courses (37-46 credits)

Required Biology Courses (7-8 credits)

Choose one sequence below; select courses COULD satisfy Science for core.

- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 13500 - First Year Biology Laboratory

Required Chemistry Selective Courses (5-10 credits)

Choose one option below; select courses COULD satisfy Science for core.

- CHM 11500 - General Chemistry
- CHM 11600 - General Chemistry
- CHM 12500 - Introduction To Chemistry I
- CHM 12600 - Introduction To Chemistry II
- CHM 13600 - General Chemistry Honors
- CHM 12901 - General Chemistry With A Biological Focus

Required Computing Option (3-4 credits)

Choose one of the following:

- CS 15900 - C Programming ♦
- CS 17700 - Programming With Multimedia Objects ♦
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Earth, Atmospheric, and Planetary Science Course (3 credits)

- EAPS 11100 - Physical Geology

Required Mathematics Courses (8-10 credits)

Satisfies Quantitative Reasoning for core.

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Required Physics Selective Courses (8 credits)

Choose one option below; select courses COULD satisfy Science for core.

Option I

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II

Option II

- PHYS 22000 - General Physics
- PHYS 22100 - General Physics

Option III

- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions

Option IV

- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Required Statistics Courses (3 credits)

Choose one of the following:

- STAT 35000 - Introduction To Statistics ♦
- STAT 50300 - Statistical Methods For Biology ♦
- STAT 51100 - Statistical Methods ♦

Required Earth, Atmospheric, and Planetary Sciences Primary Area Courses (15 - 16 credits)

- EAPS 22100 - Survey Of Atmospheric Science or
- EAPS 22500 - Science Of The Atmosphere
- EAPS 23000 - Laboratory In Atmospheric Science
- EAPS 11200 - Earth Through Time - (or any EAPS course 20000 level or higher) - Credit Hours: 3.00
- EAPS 30000 level or higher - Credit Hours: 3.00
- EAPS 30000 level or higher - Credit Hours: 3.00
- EAPS 30000 level or higher - Credit Hours: 3.00

Required Supporting Area Courses (18 credits)

MUST BE APPROVED BY COLLEGE. Please see your advisor for approval options.

Other Departmental/Program Course Requirements (15-37 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with Required Courses

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with Required Courses

STATISTICS - Met with Required Courses

COMPUTING - Met with Required Courses

GENERAL EDUCATION^ (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

- General Education Option I
- General Education Option II
- General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (3-35 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- EAPS 11100 - Physical Geology
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 2.00

15-18 Credits

Spring 1st Year

- EAPS 23000 - Laboratory In Atmospheric Science
- EAPS 22100 - Survey Of Atmospheric Science or
- EAPS 22500 - Science Of The Atmosphere
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Physics Selective I - Credit Hours: 4.00

15-17 Credits

Fall 2nd Year

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- Physics Selective II - Credit Hours: 4.00
- Supporting Area Course- Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16-17 Credits

Spring 2nd Year

- EAPS 11200 - Earth Through Time - (or 20000 level) - Credit Hours 3.00
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 50300 - Statistical Methods For Biology ♦ or
- STAT 51100 - Statistical Methods ♦
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-17 Credits

Fall 3rd Year

- EAPS 22100 - Survey Of Atmospheric Science or
- Elective - Credit Hours: 3.00 (if EAPS 22500 taken)
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

16-18 Credits

Spring 3rd Year

- COM 21700 - Science Writing And Presentation
- EAPS 30000 level - Credit Hours: 3.00
- General Chemistry Selective II or Elective - Credit Hours: 4.00- 5.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

16-17 Credits

Fall 4th Year

- EAPS 30000 level - Credit Hours: 3.00
- Biology Selective I - Credit Hours: 4.00
- Supporting Area Course - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

15 Credits

Spring 4th Year

- EAPS 30000 level - Credit Hours: 3.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Elective - Credit Hours: 0.00 - 2.00
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-18 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Interdisciplinary Science, BS (Mathematics)

About the Program

The interdisciplinary science major is designed to provide College of Science students with a broad base in the sciences. By combining a primary area of science study, an interdisciplinary science core, a supporting area of academic interest and the core curriculum shared by all College of Science programs, students explore how the disciplines of science come together to identify and solve scientific challenges. Students customize the major by selecting a departmental or interdepartmental primary area based in science and a supporting area that complements or enhances the primary area. This supporting area may be an approved minor from any college or school at the University or a concentration of 18 credits of courses with a unifying theme. There is a primary area representing each department in the College of Science, however, cross-disciplinary areas may be explored and added as appropriate. With the help of either a faculty member or an academic advisor, students are encouraged to petition for approval of their supporting area.

The Interdisciplinary Science Major is designed to give a student a broad base in the sciences with more depth in a Primary Area of Science and a Supporting Area, usually outside of Science. The Core courses are common across the major but the student customizes the major by selecting a departmental or interdepartmental Primary Area based in Science and a Supporting Area which may come from any college or school at the University. There is a Primary Area representing each department in the College of Science and cross-disciplinary areas will be explored and added as appropriate. Several Supporting Areas will be suggested and a student may petition for approval of others.

Students completing the interdisciplinary science major have gone on to a variety of careers - some in, and others out of, the world of science. These careers include medicine, law and other advanced-study professions, scientific sales, technical and scientific writing, computer programming and engineering.

Interdisciplinary Science Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses (68-79 credits)

Required Interdisciplinary Core Courses (37-47 credits)

Required Biology Courses (7-8 Credits)

Choose one sequence below; select courses COULD satisfy Science for core.

- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 13500 - First Year Biology Laboratory

Required Chemistry Selective Courses (5-10 credits)

Choose one option below; select courses COULD satisfy Science for core.

- CHM 11500 - General Chemistry
- CHM 11600 - General Chemistry
- CHM 12500 - Introduction To Chemistry I
- CHM 12600 - Introduction To Chemistry II
- CHM 13600 - General Chemistry Honors

- CHM 12901 - General Chemistry With A Biological Focus

Required Computing Option (3-4 credits)

Choose one of the following:

- CS 17700 - Programming With Multimedia Objects ♦
- CS 15900 - C Programming ♦
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Earth, Atmospheric, and Planetary Science Selective Courses (3 - 4 credits)

Select courses COULD satisfy Science for core.

- EAPS 10000 - Planet Earth
- EAPS 10900 - The Dynamic Earth
- EAPS 11100 - Physical Geology
- EAPS 22100 - Survey Of Atmospheric Science and
- EAPS 23000 - Laboratory In Atmospheric Science
- EAPS 22500 - Science Of The Atmosphere and
- EAPS 23000 - Laboratory In Atmospheric Science

Required Mathematics Courses (8-10 credits)

Choose one option below; satisfies Quantitative Reasoning for core.

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Required Physics Selective Courses (8 credits)

Choose one option below; select courses COULD satisfy Science for core.

Option I

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II

Option II

- PHYS 22000 - General Physics
- PHYS 22100 - General Physics

Option III

- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions

Option IV

- PHYS 17200 - Modern Mechanics
- PHYS 25200 - Electricity And Optics Laboratory

- PHYS 24100 - Electricity And Optics

Required Statistics Selective Courses (3 credits)

Choose one of the following:

- STAT 35000 - Introduction To Statistics ♦
- STAT 35500 - Statistics For Data Science ♦
- STAT 50300 - Statistical Methods For Biology ♦

Required Mathematics Primary Area Courses (17-18 credits)

- MA 35100 - Elementary Linear Algebra
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations or
- MA 36600 - Ordinary Differential Equations
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I or
- MA 45300 - Elements Of Algebra I or
- MA 45000 - Algebra Honors
- MA Elective at or above 30000 level

Required Supporting Area Courses (18 credits)

MUST BE APPROVED BY COLLEGE. Please see your advisor for approval options.

Other Departmental/Program Course Requirements (15-37 credits)

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with Required Courses

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with Required Courses

STATISTICS - Met with Required Courses

COMPUTING - Met with Required Courses

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (4-37 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I

- Physics Selective I - Credit Hours: 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15-18 Credits

Spring 1st Year

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Physics Selective II - Credit Hours: 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

15-17 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- EAPS Selective - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

16-17 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦ or
- STAT 50300 - Statistical Methods For Biology ♦
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- MA 36600 - Ordinary Differential Equations or
- MA 26200 - Linear Algebra And Differential Equations
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

15-16 Credits

Spring 3rd Year

- COM 21700 - Science Writing And Presentation
- MA Elective 30000+ - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective II or Elective - Credit Hours: 4.00 - 5.00
- Elective - Credit Hours: 3.00

16-17 Credits

Fall 4th Year

- MA 45300 - Elements Of Algebra I or
- MA 45000 - Algebra Honors or
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- Biology Selective I - Credit Hours: 4.00
- Supporting Area Course - Credit Hours: 3.00
- Great Issue Option - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

16 Credits

Spring 4th Year

- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Elective - Credit Hours: 2.00
- Supporting Area Course - Credit Hours: 3.00
- Elective - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

14-16 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Interdisciplinary Science, BS (Physics)

About the Program

The interdisciplinary science major is designed to provide College of Science students with a broad base in the sciences. By combining a primary area of science study, an interdisciplinary science core, a supporting area of academic interest and the core curriculum shared by all College of Science programs, students explore how the disciplines of science come together to identify and solve scientific challenges. Students customize the major by selecting a departmental or interdepartmental primary area based in science and a supporting area that complements or enhances the primary area. This supporting area may be an approved minor from any college or school at the University or a concentration of 18 credits of courses with a unifying theme. There is a primary area representing each department in the College of Science, however, cross-disciplinary areas may be explored and added as appropriate. With the help of either a faculty member or an academic advisor, students are encouraged to petition for approval of their supporting area.

The Interdisciplinary Science Major is designed to give a student a broad base in the sciences with more depth in a Primary Area of Science and a Supporting Area, usually outside of Science. The Core courses are common across the major but the student customizes the major by selecting a departmental or interdepartmental Primary Area based in Science and a Supporting Area which may come from any college or school at the University. There is a Primary Area representing each department in the College of Science and cross-disciplinary areas will be explored and added as appropriate. Several Supporting Areas will be suggested and a student may petition for approval of others.

Students completing the interdisciplinary science major have gone on to a variety of careers - some in, and others out of, the world of science. These careers include medicine, law and other advanced-study professions, scientific sales, technical and scientific writing, computer programming and engineering.

Interdisciplinary Science Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)

- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses (68-79 credits)

Required Interdisciplinary Core Courses (37-47 credits)

Required Biology Courses (7-8 credits)

Choose one sequence below; select courses COULD satisfy Science for core.

- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 13500 - First Year Biology Laboratory

Required Chemistry Selective Courses (5-10 credits)

Choose one option below; select courses COULD satisfy Science for core.

- CHM 11500 - General Chemistry
- CHM 11600 - General Chemistry
- CHM 12500 - Introduction To Chemistry I
- CHM 12600 - Introduction To Chemistry II
- CHM 13600 - General Chemistry Honors
- CHM 12901 - General Chemistry With A Biological Focus

Required Computing Option (3-4 credits)

Choose one of the following:

- CS 17700 - Programming With Multimedia Objects ♦
- CS 15900 - C Programming ♦
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Earth, Atmospheric, and Planetary Science Selective Courses (3-4 credits)

Choose one option below; select courses COULD satisfy Science for core.

- EAPS 10000 - Planet Earth
- EAPS 10900 - The Dynamic Earth
- EAPS 11100 - Physical Geology
- EAPS 22100 - Survey Of Atmospheric Science
- EAPS 23000 - Laboratory In Atmospheric Science
- EAPS 22500 - Science Of The Atmosphere
- EAPS 23000 - Laboratory In Atmospheric Science

Required Mathematics Courses (8-10 credits)

Choose one Calculus I and one Calculus II option; satisfies Quantitative Reasoning for core.

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Required Physics Courses (8 credits)

Choose one sequence below; select courses COULD satisfy Science for core.

- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Required Statistics Courses (3 credits)

Choose one of the following:

- STAT 30100 - Elementary Statistical Methods ♦
- STAT 35000 - Introduction To Statistics ♦
- STAT 50300 - Statistical Methods For Biology ♦
- STAT 51100 - Statistical Methods ♦

Required Physics Primary Area Courses (13-14 credits)

- MA 26100 - Multivariate Calculus
- PHYS 34200 - Modern Physics or
- PHYS 34400 - Modern Physics
- PHYS Elective at or above 30000 level - Credit Hours: 3.00
- PHYS Elective at or above 30000 level - Credit Hours: 3.00

Required Supporting Area Courses (18 credits)

MUST BE APPROVED BY COLLEGE. Please see your advisor for approval options.

Other Departmental/Program Course Requirements (15-37 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE[^] - Met with Required Courses

MATHEMATICS - Met with Required Courses

STATISTICS - Met with Required Courses

COMPUTING - Met with Required Courses

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I
General Education Option II
General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (4-37 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- PHYS 17200 - Modern Mechanics
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15-18 Credits

Spring 1st Year

- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 0.00 - 1.00

15-17 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus
- PHYS 34200 - Modern Physics or
- PHYS 34400 - Modern Physics
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

16-18 Credits

Spring 2nd Year

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- PHYS 30000+ Selective - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-17 Credits

Fall 3rd Year

- COM 21700 - Science Writing And Presentation
- PHYS 30000+ Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- Science Core Selection - Credit Hours: 3.00

16-17 Credits

Spring 3rd Year

- EAPS Selective - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective II or Elective - Credit Hours: 4.00 - 5.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16-18 Credits

Fall 4th Year

- STAT 30100 - Elementary Statistical Methods ♦ or
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 50300 - Statistical Methods For Biology ♦ or
- STAT 51100 - Statistical Methods ♦
- Biology Selective I - Credit Hours: 4.00
- Supporting Area Course - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 4th Year

- Supporting Area Course - Credit Hours: 3.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Elective - Credit Hours: 2.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 4.00-6.00

15-18 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean

PTGS-Portuguese	RUSS-Russian	SPAN-Spanish
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Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Interdisciplinary Science, BS (Statistics)

About the Program

The interdisciplinary science major is designed to provide College of Science students with a broad base in the sciences. By combining a primary area of science study, an interdisciplinary science core, a supporting area of academic interest and the core curriculum shared by all College of Science programs, students explore how the disciplines of science come together to identify and solve scientific challenges. Students customize the major by selecting a departmental or interdepartmental primary area based in science and a supporting area that complements or enhances the primary area. This supporting area may be an approved minor from any college or school at the University or a concentration of 18 credits of courses with a unifying theme. There is a primary area representing each department in the College of Science, however, cross-disciplinary areas may be explored and added as appropriate. With the help of either a faculty member or an academic advisor, students are encouraged to petition for approval of their supporting area.

The Interdisciplinary Science Major is designed to give a student a broad base in the sciences with more depth in a Primary Area of Science and a Supporting Area, usually outside of Science. The Core courses are common across the major but the student customizes the major by selecting a departmental or interdepartmental Primary Area based in Science and a Supporting Area which may come from any college or school at the University. There is a Primary Area representing each department in the College of Science and cross-disciplinary areas will be explored and added as appropriate. Several Supporting Areas will be suggested and a student may petition for approval of others.

Students completing the interdisciplinary science major have gone on to a variety of careers - some in, and others out of, the world of science. These careers include medicine, law and other advanced-study professions, scientific sales, technical and scientific writing, computer programming and engineering.

Interdisciplinary Science Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses (67-78 credits)

Required Interdisciplinary Core Courses (37-47 credits)

Required Biology Courses (7-8 credits)

Choose one sequence below; select courses COULD satisfy Science for core.

- BIOL 11000 - Fundamentals Of Biology I
- BIOL 11100 - Fundamentals Of Biology II
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 13500 - First Year Biology Laboratory

Required Chemistry Selective Courses (5-10 credits)

Choose one sequence below; select courses COULD satisfy Science for core.

- CHM 11500 - General Chemistry
- CHM 11600 - General Chemistry
- CHM 12500 - Introduction To Chemistry I
- CHM 12600 - Introduction To Chemistry II
- CHM 12901 - General Chemistry With A Biological Focus
- CHM 13600 - General Chemistry Honors

Required Computing Option (3-4 credits)

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Earth, Atmospheric, and Planetary Science Selective Courses (3-4 credits)

Choose one option below; select courses COULD satisfy Science for core.

- EAPS 10000 - Planet Earth
- EAPS 10900 - The Dynamic Earth
- EAPS 11100 - Physical Geology
- EAPS 22100 - Survey Of Atmospheric Science and
- EAPS 23000 - Laboratory In Atmospheric Science
- EAPS 22500 - Science Of The Atmosphere and
- EAPS 23000 - Laboratory In Atmospheric Science

Required Mathematics Courses (8-10 credits)

Choose one Calculus I option and one Calculus II option; satisfies Quantitative Reasoning for core.

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Required Physics Selective Courses (8 credits)

Choose one option below.

Select courses COULD satisfy Science for University Core:

Option I

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II

Option II

- PHYS 22000 - General Physics
- PHYS 22100 - General Physics

Option III

- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions

Option IV

- PHYS 17200 Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Required Statistics Selective Courses (3 credits)

Choose one of the following:

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦

Required Statistics Primary Area Courses (12-13 credits)

- STAT 22500 - Introduction To Probability Models or
 - STAT 31100 - Introductory Probability or
 - STAT 41600 - Probability or
 - STAT 51600 - Basic Probability And Applications
 - STAT 41700 - Statistical Theory or
 - STAT 51300 - Statistical Quality Control or
 - STAT 51400 - Design Of Experiments or
 - MA 26100 - Multivariate Calculus
 - STAT 51200 - Applied Regression Analysis
- AND
- STAT 51300 - Statistical Quality Control or
 - STAT 51400 - Design Of Experiments
- NOTE: STAT 51300 and STAT 51400 can only be taken one time each to meet primary area course requirements.

Required Supporting Area Courses (18 credits)

MUST BE APPROVED BY COLLEGE. Please see your advisor for approval options.

Other Departmental/Program Course Requirements (15-37 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE[^] - Met with Required Courses

MATHEMATICS - Met with Required Courses

STATISTICS - Met with Required Courses

COMPUTING - Met with Required Courses

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I
General Education Option II
General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (5-38 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)

- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00
- Physics Selective I - Credit Hours: 4.00
- Elective - Credit Hours: 1.00

15-18 Credits

Spring 1st Year

- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00
- Physics Selective II - Credit Hours: 4.00
- Elective - Credit Hours: 1.00
- Elective - Credit Hours: 3.00

15-17 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus or
- STAT 41700 - Statistical Theory or
- STAT 51300 - Statistical Quality Control or

- STAT 51400 - Design Of Experiments

Note: MA 26100 can be taken this semester. If another choice is selected, it will need to be moved down in the plan of study to accommodate pre-requisites.

- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- EAPS Selective - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-17 Credits

Spring 2nd Year

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

15-16 Credits

Fall 3rd Year

- STAT 22500 - Introduction To Probability Models or
- STAT 31100 - Introductory Probability or
- STAT 41600 - Probability or
- STAT 51600 - Basic Probability And Applications
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

15-16 Credits

Spring 3rd Year

- COM 21700 - Science Writing And Presentation
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective II or Elective - Credit Hours: 4.00 - 5.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16-17 Credits

Fall 4th Year

- STAT 51200 - Applied Regression Analysis
- Supporting Area Course - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Biology Selective I - Credit Hours: 4.00
- Great Issues Option - Credit Hours: 3.00

16 Credits

Spring 4th Year

- STAT 51300 - Statistical Quality Control or
- STAT 51400 - Design Of Experiments
- Supporting Area Course - Credit Hours: 3.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Elective - Credit Hours: 0.00 - 2.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours - 0.00 - 3.00

15 Credits

Notes

- 2.0 Graduation GPA required for Bachelor of Science

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student

must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Science Education - Biology Concentration, BS

About the Program

A College of Science degree in Science Education prepares future science teachers for certification at the middle and high school level. Students customize their focus by selecting a major area of study in biology, chemistry, physics, or earth and space science within an interdisciplinary science framework. The Science Education degree ensures students are thoroughly educated in their content discipline and modern theories of learning and education. Graduates are in high demand as STEM education and careers continue to grow in demand.

Science Education Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete

minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses

Required Science Education Core Courses (26-30 credits)

Overall GPA for Biology Concentration courses with the Departmental/Program Major Courses must be ≥ 2.50 . This includes all courses under the Science Education Core plus all courses in the Biology Concentration.

Required Chemistry Course (5 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦

Required Computing Option (3-4 credits)

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦

Required Calculus Courses (6-10 credits)

Choose one Calculus sequence.

(satisfies Quantitative Reasoning for core)

- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- MA 16100 - Plane Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16500 - Analytic Geometry And Calculus I
- MA 16600 - Analytic Geometry And Calculus II

Required Physics Courses (8 credits)

Choose one Physics sequence.

(satisfies Science for core)

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS - 17200 Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Required Statistics Course (3 credits)

- STAT 50300 - Statistical Methods For Biology

Biology Concentration (37-38 credits)

Overall GPA for Biology Concentration courses with the Departmental/Program Major Courses must be ≥ 2.50 . This includes all courses under the Science Education Core plus all courses in the Biology Concentration.

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (satisfies Science, Technology & Society and Science for core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 13500 - First Year Biology Laboratory or
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function ♦
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology ♦
- BIOL 28600 - Introduction To Ecology And Evolution
Choose one Organic Chemistry I group.
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory

Choose one Organic Chemistry II group.

- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory

Biology Selectives (10 credits)

Elect ten (10) hours of upper division biology courses

Choose one Intermediate Biology Selective, choose at least one Group A Selective, at least one Group B Selective, satisfy the Base Laboratory requirement, and at least one 50000-level course from Group A Selectives or Group B Selectives. Overlap (Intermediate Selective, A, B, 500, Lab) is allowed, but 10 credits must still be earned.

Research (49400 or 49900 - maximum of 2 credits), BIOL 36701 Principles of Development Lab, and BIOL 44100 Senior Seminar in Genetics, will count toward the 10 credit requirement, but will not satisfy the Group A, Group B, or laboratory requirement.

Group A Selective - Credit Hours: 2.00 - 3.00

- BIOL 39500 - Special Assignments
 - Macromolecules
 - Genes + Proteins = Big Data
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43600 - Neurobiology
- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- BIOL 44400 - Human Genetics
- BIOL 44600 - Molecular Bacterial Pathogenesis
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 48100 - Eukaryotic Genetics
- BIOL 51100 - Introduction To X-Ray Crystallography
- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 52900 - Bacterial Physiology
- BIOL 53300 - Medical Microbiology
- BIOL 53601 - Biological And Structural Aspects Of Drug Design And Action
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 54900 - Microbial Ecology
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 56200 - Neural Systems
- BIOL 56310 - Protein Bioinformatics
- **BIOL 59500 - Special Assignments**
 - Cellular Biology of Plants
 - Epigenetics in Human Disease
 - Genetics & Omics of Host-Microbe Interaction
 - Methods and Measurements in Physical Biochemistry
 - Neural Mechanisms in Health & Disease

- Neurobiology of Learning and Memory
- Practical Biocomputing
- Theory of Molecular Methods
- BCHM 43400 - Medical Topics In Biochemistry
- BCHM 56100 - General Biochemistry I
- BCHM 56200 - General Biochemistry II
- CHM 33900 - Biochemistry: A Molecular Approach
- CHM 53300 - Introductory Biochemistry

Group B Selective - Credit Hours: 2.00 - 4.00

- BIOL 32800 - Principles Of Physiology
- BIOL 36700 - Principles Of Development
- BIOL 43200 - Reproductive Physiology
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 53700 - Immunobiology
- BIOL 55900 - Endocrinology
- BIOL 58000 - Evolution
- BIOL 58210 - Ecological Statistics
- BIOL 58705 - Animal Communication
- BIOL 59100 - Field Ecology
- BIOL 59200 - The Evolution Of Behavior
- BIOL 59500 - Special Assignments
 - Disease Ecology
 - Ecology
- HORT 30100 - Plant Physiology

Intermediate Biology Requirements

Depending on the specific major within the Department of Biological Sciences, the Intermediate Biology Selective will vary:

Biology majors may choose any of the eight options.

Biochemistry (Biology) majors must choose BIOL 39500, Macromolecules, for this requirement.

Biochemistry Honors majors must choose BIOL 39500, Macromolecules, for this requirement.

Cell, Molecular, and Developmental Biology majors must choose one of these three options: 1) BIOL 36700, Principles of Development and BIOL 36701, Principles of Development Lab, or 2) BIOL 41500, Introduction to Molecular Biology, or 3) BIOL 42000, Eukaryotic Cell Biology.

Ecology, Evolution, and Environmental Biology majors may choose any of the eight options.

Genetics majors may choose from seven of the eight options. They may NOT choose BIOL 43800, General Microbiology.

Health & Disease majors must choose BIOL 43800, General Microbiology.

Objective A - Research planning, literature review, writing

All students must meet Objective A with research, or take one of the following courses

- BIOL 39500 - Special Assignments
 - Exp Dsgn&Quant Analys I - Honors
- BIOL 43900 - Laboratory In General Microbiology
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 49500 - Special Assignments Data Science: Good versus Bad Data
- BIOL 58210 - Ecological Statistics
- BIOL 59100 - Field Ecology
- BIOL 59500 - Special Assignments
BIOL 59500 is a variable title course. Approved titles for this course:
 - Exp Dsgn&Quant Analys I - Honors
 - Laboratory in Ecology
 - Neural Mech in Hlth Disease
 - Theory of Molecular Methods

Objective B - Analysis, simulation, and presentation

All students must meet Objective B with research, or take one of the following courses

- BIOL 39500 - Special Assignments
 - Exp Dsgn&Quant Analys I - Honors
- BIOL 43900 - Laboratory In General Microbiology
- BIOL 44202 - Animal Physiology
- BIOL 44205 - Introduction To LabVIEW
- BIOL 44212 - Microscopy And Cell Biology
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 49500 - Special Assignments Data Science: Good versus Bad Data
- BIOL 54200 - Modular Upper-Division Laboratory Course
 - Neurophysiology
- BIOL 58210 - Ecological Statistics
- BIOL 59100 - Field Ecology
- BIOL 59500 - Special Assignments
BIOL 59500 is a variable title course. Approved titles for this course:
 - CryoEM 3D Reconstruction
 - Data Analysis in Neurosci
 - Exp Dsgn&Quant Analys I - Honors
 - Laboratory in Ecology
 - Neural Mech in Hlth Disease
 - Theory of Molecular Methods

Educational Program Course Requirements (36-37 credits)

3.0 average in Professional Education courses (No grade below a C-)

- EDCI 20500 - Exploring Teaching As A Career
- EDCI 27000 - Introduction To Educational Technology And Computing
- EDCI 28500 - Multiculturalism And Education

- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Classroom Assessment
- EDPS 43010 - Secondary Creating And Managing Learning Environments
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 42100 - The Teaching Of Biology In Secondary Schools
- EDCI 49800 - Supervised Teaching
- EDCI 42800 - Teaching Science In The Middle And Junior High School or
- EDCI 55800 - Integrated Science, Technology, Engineering And Mathematics (STEM) Education Methods-Secondary

Other Departmental /Program Course Requirements (15-27 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Met with Student Teaching

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Human Cultures Humanities for core)

Language/Culture Option I - Met with EDCI 28500

Language/Culture Option II

Language/Culture Option III

GREAT ISSUES - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE[^] - Met with Required Courses

MATHEMATICS - Met with Required Courses

STATISTICS - Met with Required Courses

COMPUTING - Met with Required Courses

GENERAL EDUCATION[^] (Select courses COULD satisfy Human Culture Behavioral/Social Science for core)

General Education Option I - Met with EDPS 23500

General Education Option II

General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Optional Concentration

K-12 Integrated STEM Optional Concentration for Education

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click here.

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦
- BIOL 13500 - First Year Biology Laboratory or
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 19500 - Special Assignments
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16010 - Applied Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Elective - Credit Hours: 1.00

16-19 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry ♦ and
- CHM 25501 - Organic Chemistry Laboratory
OR
- CHM 26505 - Organic Chemistry ♦ and
- CHM 26300 - Organic Chemistry Laboratory
- MA 16020 - Applied Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

16-18 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function ♦
- CHM 25600 - Organic Chemistry ♦ and
- CHM 25601 - Organic Chemistry Laboratory
OR
- CHM 26505 - Organic Chemistry ♦ and
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology ♦
- BIOL 28600 - Introduction To Ecology And Evolution
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Classroom Assessment
- EDCI 27000 - Introduction To Educational Technology And Computing
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

16 Credits

Fall 3rd Year

- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education
- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- Intermediate Biology Selective - Credit Hours: 2.00 - 4.00
- Group A Selective - Credit Hours: 2.00 - 3.00
- Great Issues In Science Option - Credit Hours: 3.00

17-20 Credits

Spring 3rd Year

- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Group B Selective - Credit Hours: 2.00
- Elective - Credit Hours: 1.00

16-17 Credits

Fall 4th Year

- EDCI 42100 - The Teaching Of Biology In Secondary Schools
- EDPS 43010 - Secondary Creating And Managing Learning Environments
- STAT 50300 - Statistical Methods For Biology
- EDCI 42800 - Teaching Science In The Middle And Junior High School or
- EDCI 55800 - Integrated Science, Technology, Engineering And Mathematics (STEM) Education Methods-Secondary
- Biology Lab Selective(s) - Credit Hours: 2.00 - 4.00
- 50000 Level Biology Selective - Credit Hours: 3.00 - 4.00

14-18 Credits

Spring 4th Year

- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 49800 - Supervised Teaching

15 Credits

Notes

Note: This degree is intended to give students many options. Students need to consult with a College of Science Academic Advisor regarding requirements.

2.0 average in BIOL courses required to graduate.

2.5 average in Biology concentration courses required to graduate

3.0 average in Professional Education courses (No grade below a C-)

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Science Education - Chemistry Concentration, BS

About the Program

A College of Science degree in Science Education prepares future science teachers for certification at the middle and high school level. Students customize their focus by selecting a major area of study in biology, chemistry, physics, or

earth and space science within an interdisciplinary science framework. The Science Education degree ensures students are thoroughly educated in their content discipline and modern theories of learning and education. Graduates are in high demand as STEM education and careers continue to grow in demand.

Science Education Major Change (CODO) Requirements

Degree Requirements

131 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics

- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click here.

Departmental/Program Major Courses

Required Science Education Core Courses (24-30 credits)

Overall GPA for Chemistry Concentration courses with the Departmental/Program Major Courses must be ≥ 2.50 . This includes all courses under the Science Education Core plus all courses in the Chemistry Concentration unless otherwise indicated.

Required Chemistry Selective Courses (4-5 credits)

(satisfies Science for University Core)

- CHM 11500 - General Chemistry or
- CHM 12500 - Introduction To Chemistry I

Required Computing Option (3-4 credits)

Required for College of Science Core. NOT included in the CONTENT GPA.

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Calculus Selective Courses (6-10 credits)

(satisfies Quantitative Reasoning for University Core)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
AND
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Required Physics Selective Courses (8 credits)

(satisfies Science for core)

- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions
OR

- PHYS 24100 - Electricity And Optics and
- PHYS 25200 - Electricity And Optics Laboratory

Required Statistics Selective Courses (3 credits)

NOT included in the CONTENT GPA.

- STAT 30100 - Elementary Statistical Methods (satisfies Information Literacy for University Core) or
- STAT 35000 - Introduction To Statistics

Chemistry Concentration (39-46 credits)

Overall GPA for Chemistry Concentration courses with the Departmental/Program Major Courses must be ≥ 2.50 (CONTENT GPA). This includes all courses under the Science Education Core plus all courses in the Chemistry Concentration unless otherwise indicated.

- CHM 24100 - Introductory Inorganic Chemistry
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 34200 - Inorganic Chemistry
- CHM 37300 - Physical Chemistry
- CHM 37400 - Physical Chemistry
- CHM 11600 - General Chemistry (satisfies Science for core) or
- CHM 12600 - Introduction To Chemistry II (satisfies Science for core) or
- CHM 13600 - General Chemistry Honors (satisfies Science for core) or
- CHM 12901 - General Chemistry With A Biological Focus (satisfies Science for core)
- CHM 26505 - Organic Chemistry or
- CHM 26100 - Organic Chemistry
- CHM 26500 - Organic Chemistry Laboratory or
- CHM 26300 - Organic Chemistry Laboratory or
- CHM 26700 - Organic Chemistry Laboratory Honors
- CHM 26200 - Organic Chemistry or
- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory or
- CHM 26400 - Organic Chemistry Laboratory or
- CHM 26800 - Organic Chemistry Laboratory Honors
- CHM 32100 - Analytical Chemistry I or
- CHM 32300 - Analytical Chemistry I Honors
- CHM 33300 - Principles Of Biochemistry or
- CHM 53300 - Introductory Biochemistry or
- BCHM 56100 - General Biochemistry I
- CHM 37301 - Physical Chemistry Laboratory and
- CHM 37401 - Physical Chemistry Laboratory
- MA 26100 - Multivariate Calculus (satisfies Quantitative Reasoning for core) or
- MA 27101 - Honors Multivariate Calculus (satisfies Quantitative Reasoning for core)

Educational Program Course Requirements (36-37 credits)

All Profession Education courses taken must be at a C- or better with an average GPA greater than or equal to 3.0.

- EDCI 20500 - Exploring Teaching As A Career (satisfies Written Communication for University Core)
- EDCI 27000 - Introduction To Educational Technology And Computing (satisfies Information Literacy for University Core)
- EDCI 28500 - Multiculturalism And Education (satisfies Behavioral & Social Sciences for University Core)
- EDPS 23500 - Learning And Motivation (satisfies Behavioral & Social Sciences for University Core)
- EDPS 26500 - The Inclusive Classroom (satisfies Behavioral & Social Sciences for University Core)
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Classroom Assessment
- EDPS 43010 - Secondary Creating And Managing Learning Environments
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- EDCI 49800 - Supervised Teaching
- EDCI 42800 - Teaching Science In The Middle And Junior High School or
- EDCI 55800 - Integrated Science, Technology, Engineering And Mathematics (STEM) Education Methods-Secondary

Other Departmental /Program Course Requirements (24-28 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION[^]- Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 strongly recommended.)

TEAM-BUILDING & COLLABORATION* - Met with Student Teaching

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I - Met with EDCI 28500

Language/Culture Option II

Language/Culture Option III

GREAT ISSUES - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE[^] - Met with Required Courses

MATHEMATICS - Met with Required Courses

STATISTICS - Met with Required Courses

COMPUTING - Met with Required Courses

GENERAL EDUCATION[^] (Select courses COULD satisfy Human Culture Behavioral/Social Science for core)

General Education Option I - Met with EDPS 23500

General Education Option II

General Education Option III

REQUIRED PRE-REQUISITE COURSES

- CHM 19400 - Freshman Chemistry Orientation

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-3 credits)

Optional Concentration

K-12 Integrated STEM Optional Concentration for Education

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- CHM 19400 - Freshman Chemistry Orientation
- EDCI 27000 - Introduction To Educational Technology And Computing

- CHM 11500 - General Chemistry or
- CHM 12500 - Introduction To Chemistry I
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I

15-17 Credits

Spring 1st Year

- PHYS 17200 - Modern Mechanics
- CHM 11600 - General Chemistry or
- CHM 12600 - Introduction To Chemistry II or
- CHM 12901 - General Chemistry With A Biological Focus or
- CHM 13600 - General Chemistry Honors
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00

15-17 Credits

Fall 2nd Year

- CHM 29400 - Sophomore Chemistry Seminar
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education
- CHM 26505 - Organic Chemistry or
- CHM 26100 - Organic Chemistry
- CHM 26300 - Organic Chemistry Laboratory or
- CHM 26500 - Organic Chemistry Laboratory or
- CHM 26700 - Organic Chemistry Laboratory Honors
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus

15-17 Credits

Spring 2nd Year

- CHM 24100 - Introductory Inorganic Chemistry
- EDST 20010 - Educational Policies And Laws
- CHM 26605 - Organic Chemistry or
- CHM 26200 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory or

- CHM 26600 - Organic Chemistry Laboratory or
- CHM 26800 - Organic Chemistry Laboratory Honors
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 Electricity And Optics Laboratory
- Science Core Selection - Credit Hours: 3.00

16-17 Credits

Fall 3rd Year

- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- COM 21700 - Science Writing And Presentation
- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom
- STAT 30100 - Elementary Statistical Methods or
- STAT 35000 - Introduction To Statistics

16 Credits

Spring 3rd Year

- CHM 34200 - Inorganic Chemistry
- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- EDPS 32700 - Classroom Assessment
- EDPS 43010 - Secondary Creating And Managing Learning Environments
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

18 Credits

Fall 4th Year

- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- CHM 32100 - Analytical Chemistry I or
- CHM 32300 - Analytical Chemistry I Honors
- CHM 33300 - Principles Of Biochemistry or
- CHM 43300 - Biochemistry or
- BCHM 56100 - General Biochemistry I
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Great Issues Option - Credit Hours: 3.00

17 Credits

Spring 4th Year

- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 49800 - Supervised Teaching
- EDCI 42800 - Teaching Science In The Middle And Junior High School or
- EDCI 55800 - Integrated Science, Technology, Engineering And Mathematics (STEM) Education Methods-Secondary

15-16 Credits

Notes

Note: This degree is intended to give students many options. Students need to consult with a College of Science Academic Advisor regarding requirements.

2.0 average in CHM courses required to graduate.

2.5 average or above in Chemistry Content courses required to graduate

3.0 average or above in Professional Education courses required to graduate (No grade below a C-)

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Science Education - Earth Space Science Concentration, BS

About the Program

A College of Science degree in Science Education prepares future science teachers for certification at the middle and high school level. Students customize their focus by selecting a major area of study in biology, chemistry, physics, or earth and space science within an interdisciplinary science framework. The Science Education degree ensures students are thoroughly educated in their content discipline and modern theories of learning and education. Graduates are in high demand as STEM education and careers continue to grow in demand.

Science Education Major Change (CODO) Requirements

Degree Requirements

129 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses

Required Science Education Core Courses (26-30 credits)

Overall GPA for Earth Space Concentration courses with the Departmental/Program Major Courses must be ≥ 2.50 . This includes all courses under the Science Education Core plus all courses in the Earth Space Concentration unless otherwise indicated.

Required Chemistry Selective Courses (4-5 credits)

(satisfies Science for University Core)

- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦

Required Computing Option (4 credits)

Meets College of Science Computing Requirement. NOT including in CONTENT GPA.

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Calculus Selective Courses (8-10 credits)

(satisfies Quantitative Reasoning for University Core). NOT including in CONTENT GPA.

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
AND
- MA 16200 - Plane Analytic Geometry And Calculus II or

- MA 16600 - Analytic Geometry And Calculus II

Required Physics Selective Courses (8 credits)

(satisfies Science for University Core)

- PHYS 17200 - Modern Mechanics or
- PHYS 22000 - General Physics
AND
- PHYS 22100 - General Physics or
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory

Required Statistics Selective Courses (3 credits)

Meets College of Science Statistics Requirement. NOT including in CONTENT GPA.

- STAT 30100 - Elementary Statistical Methods ♦ (satisfies Information Literacy for University Core)

Earth Space Science Concentration (32-34 credits)

Overall GPA for Earth Space Concentration courses with the Departmental/Program Major Courses must be ≥ 2.50 . This includes all courses under the Science Education Core plus all courses in the Earth Space Concentration unless otherwise indicated.

- EAPS 10500 - The Planets (satisfies Science for University Core)
- EAPS 11700 - Introduction To Atmospheric Science (satisfies Science for University Core)
- EAPS 20000 - Water World: Processes And Challenges In Global Hydrology (satisfies Science, Technology, Society for University Core)
- EAPS 24300 - Earth Materials I ♦ (satisfies Science for University Core)
- EAPS 35300 - Earth Surface Processes
- EAPS 35400 - Plate Tectonics
- EAPS 39000 - Geologic Field Methods
- CHM 11600 - General Chemistry ♦ (satisfies Science for University Core) or
- CHM 12600 - Introduction To Chemistry II ♦ (satisfies Science for University Core) or
- CHM 12901 - General Chemistry With A Biological Focus ♦ or
- CHM 13600 - General Chemistry Honors ♦ (satisfies Science for University Core)
- EAPS 11200 - Earth Through Time (satisfies Science for University Core) or
- EAPS 10900 - The Dynamic Earth (satisfies Science for University Core)
- EAPS 11800 - Introduction To Earth Sciences ♦ or
- EAPS 11100 - Physical Geology (satisfies Science for University Core)

Educational Program Course Requirements (36 credits)

Professional Education GPA Average ≥ 3.00 - no grade lower than C-

- EDCI 20500 - Exploring Teaching As A Career (satisfies Written Communication for University Core)

- EDCI 27000 - Introduction To Educational Technology And Computing (satisfies Information Literacy for University Core)
- EDCI 28500 - Multiculturalism And Education (satisfies Behavior/Social Science for University Core)
- EDPS 23500 - Learning And Motivation (satisfies Behavior/Social Science for University Core)
- EDPS 26500 - The Inclusive Classroom (satisfies Behavior/Social Science for University Core)
- EDST 20010 - Educational Policies And Laws (satisfies Behavior/Social Science for University Core)
- EDPS 32700 - Classroom Assessment
- EDPS 43010 - Secondary Creating And Managing Learning Environments
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- EDCI 49800 - Supervised Teaching
- EDCI 42800 - Teaching Science In The Middle And Junior High School or
- EDCI 55800 - Integrated Science, Technology, Engineering And Mathematics (STEM) Education Methods-Secondary

Other Departmental/Program Course Requirements (15-27 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION[^] - Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION^{*} - Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core)

TEAM-BUILDING & COLLABORATION^{*} - Met with Student Teaching

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 12.00 (Select courses COULD satisfy Human Cultures Humanities for core)

Language/Culture Option I - Met with EDCI 28500

Language/Culture Option II

Language/Culture Option III

GREAT ISSUES - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE[^] - Met with Required Courses

MATHEMATICS - Met with Required Courses

STATISTICS - Met with Required Courses

COMPUTING - Met with Required Courses

GENERAL EDUCATION[^] (Select courses COULD satisfy Human Culture Behavioral/Social Science for core)

General Education Option I - Met with EDPS 23500

General Education Option II

General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-11 credits)

Optional Concentration

K-12 Integrated STEM Optional Concentration for Education

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- EAPS 11800 - Introduction To Earth Sciences ♦ or
- EAPS 11100 - Physical Geology ♦
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I

- Science Core Selection - Credit Hours: 3.00-4.00

14-16 Credits

Spring 1st Year

- CHM 11600 - General Chemistry ♦ or
- CHM 12600 - Introduction To Chemistry II ♦ or
- CHM 12901 - General Chemistry With A Biological Focus ♦ or
- CHM 13600 - General Chemistry Honors ♦
- EAPS 11200 - Earth Through Time or
- EAPS 10900 - The Dynamic Earth
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
or
- HONR 19903 - Interdisciplinary Approaches In Writing
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

14-17 Credits

Fall 2nd Year

- EAPS 24300 - Earth Materials I ♦
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education
- PHYS 17200 - Modern Mechanics or
- PHYS 22000 - General Physics
- Science Core Selection - Credit Hours: 3.00

17 Credits

Spring 2nd Year

- EAPS 35400 - Plate Tectonics
- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom
- EAPS 20000 - Water World: Processes And Challenges In Global Hydrology
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 22100 - General Physics or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory

16 Credits

Fall 3rd Year

- EAPS 10500 - The Planets
- EAPS 11700 - Introduction To Atmospheric Science
- EAPS 35300 - Earth Surface Processes
- EDPS 32700 - Classroom Assessment
- EDPS 43010 - Secondary Creating And Managing Learning Environments
- EDST 20010 - Educational Policies And Laws
- STAT 30100 - Elementary Statistical Methods ♦

15 Credits

Spring 3rd Year

- COM 21700 - Science Writing And Presentation
- EAPS 39000 - Geologic Field Methods
- EDCI 27000 - Introduction To Educational Technology And Computing
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

15 Credits

Fall 4th Year

- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Great Issues Option - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

13 Credits

Spring 4th Year

- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 49800 - Supervised Teaching
- EDCI 42800 - Teaching Science In The Middle And Junior High School or
- EDCI 55800 - Integrated Science, Technology, Engineering And Mathematics (STEM) Education Methods-Secondary

15-16 Credits

Notes

Note: This degree is intended to give students many options. Students need to consult with a College of Science Academic Advisor regarding requirements.

2.0 Graduation GPA required for Bachelor of Science degree.

2.0 average in EAPS major classes required to graduate.

Overall GPA for Earth Space Science Concentration courses with the Departmental/Program Major Courses must be \geq 2.5

Professional Education GPA Average \geq 3.00 - no grade lower than C-

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Science Education - Physics Concentration, BS

About the Program

A College of Science degree in Science Education prepares future science teachers for certification at the middle and high school level. Students customize their focus by selecting a major area of study in biology, chemistry, physics, or earth and space science within an interdisciplinary science framework. The Science Education degree ensures students are thoroughly educated in their content discipline and modern theories of learning and education. Graduates are in high demand as STEM education and careers continue to grow in demand.

Science Education Major Change (CODO) Requirements

Degree Requirements

127 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating

experiential learning into their four-year program of study. For more information on earning requirements through experience, please click here.

Departmental/Program Major Courses

Required Science Education Core Courses (25-30 credits)

Required Chemistry Selective Courses (4-5 credits)

Chemistry courses: (satisfies Science for core)

- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦

Required Computing Option (4 credits)

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Required Calculus Selective Courses (6-10 credits)

Calculus Courses: (satisfies Quatitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
AND
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Required Physics Selective Courses (8 credits)

Physic Course: (satisfies Science for core)

- PHYS 17200 - Modern Mechanics ♦ - Honors version REQUIRED and
- PHYS 27200 - Electric And Magnetic Interactions ♦ - Honors version REQUIRED

Required Statistics Selective Courses (3 credits)

- STAT 30100 - Elementary Statistical Methods (satisfies Information Literacy for core)

Educational Program Course Requirements (36 credits)

Professional Education GPA Average ≥ 3.00 - no grade lower than C-

- EDCI 20500 - Exploring Teaching As A Career (satisfies Written Communication for core)
- EDCI 27000 - Introduction To Educational Technology And Computing (satisfies Information Literacy for core)

- EDCI 28500 - Multiculturalism And Education (satisfies Behavioral/Social Science for core)
- EDPS 23500 - Learning And Motivation (satisfies Behavioral/Social Science for core)
- EDPS 26500 - The Inclusive Classroom (satisfies Behavioral/Social Science for core)
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Classroom Assessment
- EDPS 43010 - Secondary Creating And Managing Learning Environments
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- EDCI 49800 - Supervised Teaching
- EDCI 42800 - Teaching Science In The Middle And Junior High School or
- EDCI 55800 - Integrated Science, Technology, Engineering And Mathematics (STEM) Education Methods-Secondary

Physics Concentration (30-31 credits)

Overall GPA for Physics Concentration courses with the Departmental/Program Major Courses must be ≥ 2.5

Required courses for the Biology Concentration that a met within Department/Program requirements, but included in the content GPA for this concentration:

- CHM 11500/12500/12300
- PHYS 17200/17200H (note: Majors in Physics must take the Honors Versions)
- PHYS 27200/27200H (note: Majors in Physics must take the Honors Versions)
- PHYS 30600 - Mathematical Methods Of Physics I
- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 31000 - Intermediate Mechanics
- PHYS 33000 - Intermediate Electricity And Magnetism
- PHYS 34000 - Modern Physics Laboratory
- PHYS 34400 - Modern Physics
- PHYS 36000 - Quantum Mechanics
- PHYS 42200 - Waves And Oscillations
- PHYS 45000 - Intermediate Laboratory
- CHM 11600 - General Chemistry ♦ (satisfies Science for core) or
- CHM 12600 - Introduction To Chemistry II ♦ (satisfies Science for core) or
- CHM 13600 - General Chemistry Honors ♦

PHYS Major Selectives (12-13 credits)

- PHYS 53600 - Electronic Techniques For Research or
- PHYS 58000 - Computational Physics
- PHYS/ASTR ≥ 300 level - Credit Hours: 3.00
- Science/Engineering ≥ 300 level (could be met by Statistics Option) - Credit Hours: 3.00
- Science/Engineering ≥ 300 level (could be met by Great Issues Option) - Credit Hours: 3.00

Other Departmental /Program Course Requirements (30-36 credits)

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy for core) or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity (satisfies Information Literacy and Written Communication for core) or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)
- MA 26100 - Multivariate Calculus (satisfies Quantitative Reasoning Selective for core) or
- MA 27101 - Honors Multivariate Calculus (satisfies Quantitative Reasoning Selective for core)
- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 3.00 - 4.00
- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 3.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core; COM 21700 strongly recommended) - Credit Hours: 3.00 - 6.00
- General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core) - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Requirement - Credit Hours: 1.00 - 4.00

Optional Concentration

K-12 Integrated STEM Optional Concentration for Education

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- PHYS 17200 - Modern Mechanics ♦ (HONORS)
- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- ENGL 10600 - First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- ENGL 10800 - Accelerated First-Year Composition
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I

16-17 Credits

Spring 1st Year

- PHYS 27200 - Electric And Magnetic Interactions ♦ (HONORS)
- CHM 11600 - General Chemistry ♦ or
- CHM 12600 - Introduction To Chemistry II ♦ or
- CHM 13600 - General Chemistry Honors ♦

- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Language I Option - Credit Hours: 3.00 - 4.00

15-18 Credits

Fall 2nd Year

- PHYS 30600 - Mathematical Methods Of Physics I
- PHYS 34000 - Modern Physics Laboratory
- PHYS 34400 - Modern Physics
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Language II Option - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 2nd Year

- EDCI 20500 - Exploring Teaching As A Career
- EDCI 27000 - Introduction To Educational Technology And Computing
- EDCI 28500 - Multiculturalism And Education
- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 42200 - Waves And Oscillations
- STAT 30100 - Elementary Statistical Methods

18 Credits

Fall 3rd Year

- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom
- PHYS 31000 - Intermediate Mechanics
- PHYS 33000 - Intermediate Electricity And Magnetism
- PHYS 45000 - Intermediate Laboratory
- General Education I Option - Credit Hours: 3.00

18 Credits

Spring 3rd Year

- COM 21700 - Science Writing And Presentation
- PHYS 36000 - Quantum Mechanics
- PHYS 53600 - Electronic Techniques For Research or
- PHYS 58000 - Computational Physics
- General Education II Option - Credit Hours: 3.00
- Science, Technology, and Society (Multidisciplinary Requirement) - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Classroom Assessment
- EDPS 43010 - Secondary Creating And Managing Learning Environments
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- PHYS/ASTR \geq 300 level - Credit Hours: 3.00
- Great Issues Option (Sci, Engr selective) - Credit Hours: 3.00

15-16 Credits

Spring 4th Year

- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 49800 - Supervised Teaching - Spring only
- EDCI 42800 - Teaching Science In The Middle And Junior High School or
- EDCI 55800 - Integrated Science, Technology, Engineering And Mathematics (STEM) Education Methods-Secondary

15-16 Credits

Notes

Note: This degree is intended to give students many options. Students need to consult with a College of Science Academic Advisor regarding requirements.

2.5 average in Physics concentration courses required to graduate

3.0 average in Professional Education courses (No grade below a C-)

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Certificate

Applications in Data Science Certificate

Data science involves the development or application of statistical, mathematical and algorithmic techniques or tools with an aim to extract knowledge from large-scale and/or complex datasets and communicate findings.

The Applications in Data Science Undergraduate Certificate program's learning outcomes will consist of the following:

1. Describe the stages of the data life cycle (data acquisition, organization, curation, analysis, preservation, and communication) and create an effective data management and data analysis plan
2. Develop a foundation in statistical, mathematical and algorithmic techniques or tools for the analysis of large-scale datasets
3. Apply statistical, mathematical and algorithmic techniques or tools in order to extract knowledge and insights from large-scale datasets
4. Interpret results from large-scale data analysis and communicate findings
5. Identify ethical and social implications of data-science-driven decision making and policies and one's own ethical and social responsibilities when working with data

Requirements for the Certificate (16 credits)

Core Courses (10 credits)

Foundation in Statistical Methods - Choose One (3 credits)

Education

- EDPS 55600 - Introduction To Quantitative Data Analysis Methods In Education I
- EDPS 55700 - Introduction To Quantitative Data Analysis Methods In Education II

Engineering

- AAE 36100 - Introduction To Random Variables In Engineering *
- CHE 32000 - Statistical Modeling And Quality Enhancement
- ECE 20875 - Python For Data Science
- ECE 30200 - Probabilistic Methods In Electrical And Computer Engineering
- IDE 36000 - Multidisciplinary Engineering Statistics
- IE 33000 - Probability And Statistics In Engineering II

Health and Human Sciences

- PSY 20100 - Introduction To Statistics In Psychology

Liberal Arts

- ANTH 30600 - Quantitative Methods For Anthropological Research
- COM 30400 - Quantitative Methods For Communication Research
- COM 41100 - Communication And Social Networks
- POL 30000 - Introduction To Political Analysis
- POL 50100 - Political Science: Methodology
- SOC 40900 - Social Networks

Management

- ECON 36000 - Econometrics
- MGMT 30500 - Business Statistics
- MGMT 30600 - Management Science

Science

- BIOL 39500 - Special Assignments

- BIOL 58210 - Ecological Statistics
- BIOL 59500 - Special Assignments *
- EAPS 31000 - Introductory Statistics For Geosciences
- STAT 22500 - Introduction To Probability Models
- STAT 30100 - Elementary Statistical Methods
- STAT 35000 - Introduction To Statistics
- STAT 35500 - Statistics For Data Science
- STAT 50100 - Experimental Statistics I
- STAT 50300 - Statistical Methods For Biology
- STAT 51100 - Statistical Methods

Foundation in Computation - Choose One (3 credits)

Agriculture

- ABE 20500 - Computations For Engineering Systems
- ABE 30100 - Numerical And Computational Modeling In Biological Engineering
- ASM 10500 - Computing Technology With Applications

Engineering

- ECE 20875 - Python For Data Science
- ECE 26400 - Advanced C Programming
- ECE 36800 - Data Structures
- ECE 46900 - Operating Systems Engineering
- ECE 47300 - Introduction To Artificial Intelligence
- IE 33200 - Computing In Industrial Engineering

Management

- MGMT 28800 - Programming For Business Applications

Polytechnic

- CNIT 13600 - Personal Computing Technology And Applications
- CNIT 17600 - Information Technology Architectures

Science

- CS 10100 - Digital Literacy
- CS 15900 - C Programming
- CS 17700 - Programming With Multimedia Objects
- CS 18000 - Problem Solving And Object-Oriented Programming

Foundation in Data Literacy, Management, and Analytics - Choose One (3 credits)

Agriculture

- BCHM 42100 - R For Molecular Biosciences
- ENTM 24200 - Data Science

Engineering

- ECE 20875 - Python For Data Science
- ECE 29595 - Selected Topics In Electrical And Computer Engineering *
- ECE 30010 - Introduction To Machine Learning And Pattern Recognition
- ECE 47300 - Introduction To Artificial Intelligence

Liberal Arts

- COM 49600 - Special Topics In Corporate Communication - Data Storytelling*

- ILS 59500 - Special Topics In Information And Data Science *
- PHIL 20700 - Ethics For Technology, Engineering, And Design
- SCLA 59000 - Special Topics - Data Storytelling*
Management
- MGMT 38200 - Management Information Systems
- MGMT 54400 - Database Management Systems
Polytechnic
- CNIT 48800 - Data Warehousing
- CNIT 57000 - IT Data Analytics
Science
- BIOL 59500 - Special Assignments *
- CS 24200 - Introduction To Data Science
- CS 25100 - Data Structures And Algorithms
- STAT 19000 - Topics In Statistics For Undergraduates ***
- STAT 24200 - Introduction To Data Science
- STAT 29000 - Topics In Statistics For Undergraduates ***
- STAT 39000 - Topics In Statistics For Undergraduates ***
- STAT 49000 - Topics In Statistics For Undergraduates ***

Foundation in Data Ethics and Digital Citizenship - Choose One (1-4 credits)

Liberal Arts

- ILS 23000 - Data Science And Society: Ethical Legal Social Issues
- ILS 29500 - Special Topics In Information And Data Science *
- PHIL 20700 - Ethics For Technology, Engineering, And Design
- PHIL 20800 - Ethics Of Data Science
- PHIL 29000 - Environmental Ethics
- PHIL 29300 - Selected Topics In Philosophy *

Application Focus (6 credits)

Students need to complete six (6) credit hours in courses concentrated on applications of data science related knowledge.

Agriculture

- ABE 49800 - Undergraduate Research In Agricultural And Biological Engineering *
- AGEC 30500 - Agricultural Prices
- AGEC 32100 - Principles Of Commodity Marketing
- AGEC 35200 - Quantitative Techniques For Firm Decision Making
- AGEC 42100 - Advanced Commodity Marketing
- AGEC 45100 - Applied Econometrics
- AGEC 49800 - Special Problems *
- AGEC 49900 - Thesis *
- AGEC 50600 - Agricultural Marketing And Price Analysis
- AGEC 51600 - Mathematical Tools For Agricultural And Applied Economics
- AGEC 55200 - Introduction To Mathematical Programming

- AGR 33300 - Data Science For Agriculture
- AGRY 32000 - Genetics
- AGRY 39900 - Individual Study *
- AGRY 44400 - Weather Analysis And Forecasting
- AGRY 48500 - Precision Crop Management
- AGRY 53000 - Advanced Plant Genetics
- AGRY 54500 - Remote Sensing Of Land Resources
- AGRY 56500 - Soils And Landscapes
- AGRY 59800 - Special Problems *
- ANSC 31100 - Animal Breeding
- ANSC 51100 - Population Genetics
- ASEC 49000 - Special Problems *
- ASEC 49700 - Thesis Research *
- ASEC 49900 - Special Problems In Agricultural Communication *
- ASEC 59000 - Special Problems *
- ASM 42200 - Advanced Machine Technology For Agricultural Crop Production
- ASM 49000 - Special Problems *
- ASM 49500 - Agricultural Systems Management Capstone Project *
- ASM 54000 - Geographic Information System Application
- BCHM 42200 - Computational Genomics
- BCHM 49800 - Research In Biochemistry *
- BCHM 49801 - Head Start To Biochemistry Research *
- BCHM 52100 - Comparative Genomics
- BTNY 30200 - Plant Ecology
- BTNY 49800 - Research In Plant Science *
- BTNY 53500 - Plant Disease Management
- ENTM 30100 - Experimentation And Analysis
- ENTM 41000 - Applied Insect Biology
- ENTM 41001 - Insects Of Urban Landscapes
- ENTM 41002 - Insects Of Agricultural Crops
- ENTM 49310 - Insect Biology Capstone Experience *
- ENTM 49700 - Special Problems In Forensic Science *
- ENTM 49800 - Special Problems In Entomology *
- FNR 21000 - Natural Resource Information Management
- FNR 34800 - Wildlife Investigational Techniques
- FNR 35100 - Aquatic Sampling Techniques
- FNR 35300 - Natural Resources Measurement
- FNR 35500 - Quantitative Methods For Resource Management
- FNR 35700 - Fundamental Remote Sensing
- FNR 35910 - Spatial Ecology
- FNR 35950 - Spatial Ecology Laboratory
- FNR 38400 - Statistics For Natural Resources
- FNR 49800 - Special Assignments *
- FNR 55800 - Remote Sensing Analysis And Applications
- FS 44400 - Statistical Process Control
- FS 49100 - Special Assignments In Food Science *
- HORT 49100 - Special Assignments In Horticulture *
- HORT 53000 - Introduction To Computing For Biologists

- HORT 53100 - Applied Plant Genomics
- HORT 55100 - Plant Responses To The Environment
- LA 49000 - Special Problems In Landscape Architecture *
- NRES 49800 - Individual Studies In Environmental Science *
- SFS 39100 - Special Problems In Sustainable Food And Farming Systems *

Data Mine

To fulfill the Application Focus, these STAT courses must be taken as a Data Mine Corporate Partners course. The Application Area will depend on the Corporate Partner.

- STAT 19000 - Topics In Statistics For Undergraduates
- STAT 29000 - Topics In Statistics For Undergraduates
- STAT 39000 - Topics In Statistics For Undergraduates
- STAT 49000 - Topics In Statistics For Undergraduates

Education

- EDCI 52800 - Human Performance Technology
- EDCI 55700 - Assessment Of Culturally And Linguistically Diverse Students
- EDCI 56400 - Integration And Management Of Technology For Learning
- EDCI 57700 - Strategic Assessment And Evaluation
- EDPS 32700 - Classroom Assessment
- EDPS 53100 - Introduction To Measurement And Instrument Design
- EDPS 53300 - Introduction To Educational Research I: Methodology
- EDPS 53400 - Introduction To Educational Research II: Measurement Consideration

Engineering

- ABE 31400 - Design Of Electronic Systems
- ABE 45000 - Finite Element Method In Design And Optimization
- ABE 46000 - Sensors And Process Control
- ABE 52700 - Computer Models In Environmental And Natural Resources Engineering
- ABE 53100 - Instrumentation And Data Acquisition
- ABE 59100 - Special Topics *
- BME 40100 - Mathematical & Computational Analysis Of Complex System Dynamics In Biology, Medicine, & Healthcare
- CE 40800 - Geographic Information Systems In Engineering
- CHE 45000 - Design And Analysis Of Processing Systems
- ECE 30834 - Fundamentals Of Computer Graphics
- ECE 43800 - Digital Signal Processing With Applications
- ECE 44000 - Transmission Of Information
- ECE 47300 - Introduction To Artificial Intelligence
- ECE 57700 - Engineering Aspects Of Remote Sensing
- EEE 25000 - Environmental, Ecological, and Engineering Systems
- EEE 30000 - Environmental And Ecological Systems Modeling
- ENGR 37920 - Junior Participation In Vertically Integrated Projects (VIP) *

- ENGR 47920 - Senior Participation In Vertically Integrated Projects (VIP) *
- ENGR 47921 - Senior Design Participation In Vertically Integrated Projects (VIP) I *
- ENGR 47922 - Senior Design Participation In Vertically Integrated Projects (VIP) II *
- IE 33500 - Operations Research - Optimization
- IE 33600 - Operations Research - Stochastic Models
- IE 59000 - Topics In Industrial Engineering *
- ME 36500 - Measurement And Control Systems I
- ME 37500 - Measurement And Control Systems II
- NUCL 59700 - Nuclear Engineering Projects I *

Health and Human Sciences

- HTM 50200 - Management Information Systems For The Hospitality Industry
- HTM 50300 - Business Statistics And Quantitative Analysis In Hospitality
- NUTR 39000 - Independent Undergraduate Research *
- NUTR 39700 - Directed Honors Research *
- NUTR 49000 - Independent Undergraduate Research *
- NUTR 49700 - Honors Research Project *
- PSY 20200 - Introduction To Quantitative Topics In Psychology
- PSY 30500 - Understanding And Analyzing Psychological Data
- PSY 39800 - Independent Research In Psychology *
- PSY 49800 - Senior Research *
- PSY 51300 - Introduction To Computational Cognitive Neuroscience
- PSY 51400 - Introduction To Mathematical Psychology
- PUBH 40500 - Principles Of Epidemiology
- PUBH 60100 - Introduction To The Quantitative Methods Of Public Health

Liberal Arts

- ANTH 52300 - GIS For Humanities And Social Science Research
- COM 21700 - Science Writing And Presentation
- PHIL 20800 - Ethics Of Data Science
- PHIL 29000 - Environmental Ethics
- PHIL 29300 - Selected Topics In Philosophy *
- POL 22900 - Emerging Problems In Political Science *
- SOC 34000 - General Social Psychology
- SOC 38300 - Introduction To Research Methods In Sociology

Management

- ECON 32500 - Economics Of Sports
- ECON 36000 - Econometrics
- ECON 47100 - Behavioral Economics
- ECON 48500 - Economics Of Racial And Gender Discrimination
- ECON 56200 - Econometrics I
- ECON 57300 - Financial Econometrics
- ECON 58500 - Behavioral Economics

- MGMT 30500 - Business Statistics
- MGMT 30600 - Management Science
- MGMT 38200 - Management Information Systems
- MGMT 40500 - Six Sigma And Quality Analytics
- MGMT 42110 - Marketing Analytics
- MGMT 46300 - Supply Chain Analytics
- MGMT 47200 - Advanced Spreadsheet Modeling And Simulation
- MGMT 47300 - Data Mining
- MGMT 47400 - Predictive Analytics
- MGMT 47900 - Data Visualization
- MGMT 48800 - Data-Driven Decisions In Digital Markets
- MGMT 52500 - Marketing Analytics
- MGMT 54400 - Database Management Systems

Polytechnic

- AT 31900 - Unmanned Aerial Systems Applications, Data And Documentation
- CGT 27000 - Introduction To Data Visualization
- CGT 31301 - The Business Of Managing Digital Product Data
- CGT 35600 - Web Programming, Development And Data Integration
- CGT 37000 - Interactive Data Visualization
- CGT 37700 - Scientific Visualization
- CGT 45600 - Advanced Web Programming, Development And Data Integration
- CGT 46000 - Building Information Modeling For Commercial Construction
- CGT 47000 - Data Visualization Studio
- CGT 51200 - Foundational Readings Of User Experience Design
- CGT 52000 - Computer Graphics Programming
- CGT 52100 - Advanced Real-Time Computer Graphics
- CGT 58100 - Workshop In Computer Graphics Technology *
- CGT 67000 - Applications In Visual Analytics
- CNIT 37200 - Database Programming
- CNIT 39200 - Enterprise Data Management
- CNIT 48101 - Topics In Computer Information Technology IV *
- CNIT 48700 - Database Administration
- CNIT 55900 - Data Warehousing
- CNIT 57000 - IT Data Analytics
- CNIT 58100 - Workshop In Computer Technology *
- CNIT 62300 - Contemporary Computer Technology Problems *
- ECET 32700 - Instrumentation And Data Acquisition Design
- ECET 35901 - Computer Based Data Acquisition Applications
- IET 41300 - Problem-Solving With Automatic Data Collection
- TECH 53300 - Design Theory And Technology

Science

- AGRY 60000 - Genomics
- BCHM 42200 - Computational Genomics

- BCHM 52100 - Comparative Genomics
- BIOL 29400 - Biology Research *
- BIOL 31200 - Great Issues Genomics And Society
- BIOL 44207 - Exploration Of Protein Structure
- BIOL 44400 - Human Genetics
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 49400 - Biology Research *
- BIOL 49900 - Biology Honors Thesis Research *
- BIOL 56310 - Protein Bioinformatics
- BIOL 58210 - Ecological Statistics
- BIOL 61100 - Crystallography Of Macromolecules
- CS 30700 - Software Engineering I
- CS 34800 - Information Systems
- CS 37300 - Data Mining And Machine Learning
- CS 47300 - Web Information Search And Management
- EAPS 30900 - Computer-Aided Analysis For Geosciences
- EAPS 32000 - Physics Of Climate
- EAPS 42000 - Global Change Modeling
- EAPS 50700 - Introduction To Analysis And Computing With Geoscience Data
- EAPS 50900 - Data Analysis Techniques In Earth And Atmospheric Sciences
- EAPS 51000 - Climate Time Series Analysis
- EAPS 52300 - Radar Meteorology
- EAPS 53000 - Extreme Weather And Climate: Science And Risk
- EAPS 54000 - Introduction To Geodesy
- EAPS 54100 - Geodetic Data And Applications
- EAPS 55700 - Introduction To Seismology
- EAPS 55900 - Topics In Seismology *
- EAPS 59100 - Advanced Topics In Earth And Atmospheric Sciences *

Notes

- * - Course requires approval before it can be used for this certificate (special topics, special assignments, research, etc).
- *** - Course taken in The Data Mine Learning Community as 1 credit seminar; must be taken 3 times to fulfill this requirement.
- A minimum of 6 credits must be in coursework outside the student's program.

Prerequisite Information

For current pre-requisites for courses, [click here](#).

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Learning Beyond the Classroom Certificate

Learning Beyond the Classroom (LBC) is open only to students majoring in the College of Science. It is a voluntary program aimed at encouraging you, the College of Science student, to engage in activities that provide hands-on experience and opportunities to apply classroom knowledge. Successful completion of the LBC program will be noted on your official Purdue transcript. You will also receive a certificate of completion.

Participation in LBC involves attending, organizing, or leading activities that fall into three general categories: career and professional development; service, citizenship and leadership; and experience with domestic and international diversity. Progress in each of the three areas is tracked by a point system. Points are earned by submitting reports on participation in activities. The number of points earned varies with the intensity of the activity.

[Learning Beyond the Classroom website](#)

Requirements for the Certificate

Completing the LBC certificate requires that you:

1. Accumulate a total of 24 points, with at least 4 points in each of 3 categories.
2. Participate in at least one intensive activity lasting an extended period of time, such as semester-long study abroad, full-time summer internship, two (consecutive) semesters of undergraduate research, an entrepreneurial activity together with the certificate of Entrepreneurship and Innovation, and academic year resident assistant. Such an activity is worth 10 points.
3. Include either (a) 3 credits of approved coursework with grades of P or C- or higher (one or more courses totaling 3 credits can meet this requirement) or (b) a semester-long study abroad program (worth 10 points) or some combination of spring break (4 points) and/or summer study abroad activities (6 points), totaling 10 points.
4. In most cases, a maximum of 6 points per year and 10 points in total may be earned for any particular activity. It is estimated that completion of the certificate will take approximately 30 hours over your college career in addition to the intensive 10-point activity described above.

[Learning Beyond the Classroom Details](#)

Courses

Among the requirements of the Learning Beyond the Classroom Certificate Program is that you participate in either (a) approved coursework with grades of P (pass) or C- or higher (one or more courses totaling 3 credits meets this requirement) or (b) semester-long study abroad or the equivalent.

Below you will find a table of courses that have been identified as meeting the objectives of this program. If there is an experiential course which is not here that you believe to be similar to those listed, contact the administrator. The College of Science Office of Undergraduate Education reserves the right to determine whether a course meets the program criteria.

- AGR 49000 - Special Problems
 - International Development Strategies
- BIOL 11500 - Biology Resource Seminar
- BIOL 19700 - Biology Freshman Honors Seminar
- BIOL 29300 - Sophomore Seminar: Planning Your Future In Biology
- BIOL 29400 - Biology Research
- BIOL 29500 - Special Assignments
 - Teaching Biology

- BIOL 39300 - Preparing For Your Future In Biology
- BIOL 49400 - Biology Research
- BIOL 49700 - Biology Honors Seminar
- BIOL 49800 - Biology Teaching
- BIOL 49900 - Biology Honors Thesis Research
- CHM 19400 - Freshman Chemistry Orientation
- CHM 19700 - Chemistry Freshman Honors Research
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 49400 - Junior-Senior Chemistry Seminar
- CHM 49900 - Special Assignments
- CS 19100 - Freshman Resources Seminar
- CS 19700 - Freshman Honors Seminar
- CS 29000 - Topics In Computer Sciences
 - Individual Study
- CS 29100 - Sophomore Development Seminar
- CS 39000 - Topics In Computer Sciences
- CS 39100 - Junior Resources Seminar
- CS 49000 - Topics In Computer Sciences For Undergraduates
 - Indiv Study or Part-time Prof Experience CS
- CS 49700 - Honors Research Project
- EAPS 10900 - The Dynamic Earth
- EAPS 11800 - Introduction To Earth Sciences
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences
- EAPS 19100 - Introductory Topics In Earth And Atmospheric Science
 - Service Learning in Outreach
- EAPS 35200 - Structural Geology
- EAPS 35300 - Earth Surface Processes
- EAPS 39000 - Geologic Field Methods
- EAPS 39100 - Topics In Earth And Atmospheric Sciences
 - Team Weather Forecasting or Meteorology Intern
- EAPS 41900 - Internship In Environmental Geosciences
- EAPS 43400 - Weather Analysis And Forecasting
- EAPS 49400 - Earth And Atmospheric Sciences Undergraduate Seminar
- EAPS 49700 - Earth And Atmospheric Sciences Undergraduate Readings And Research
- EAPS 55600 - Planetary Geology
- EAPS 59000 - Field Geology North America
- ECE 37900 - Junior Participation In Vertically Integrated Projects (VIP) In Electrical And Computer Engineering
- ECE 47900 - Senior Participation In Vertically Integrated Projects (VIP) In Electrical And Computer Engineering
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 49000 - Individual Research And Teaching Experience
 - Science Teaching Service Learning
- EDCI 49800 - Supervised Teaching
- ENTM 49800 - Special Problems In Entomology
 - Indiv Study or Forensic Teaching Assistant
- ENTR 48000 - Entrepreneurship Capstone
- EPCS 10100 - First Year Participation In EPICS
- EPCS 10200 - First Year Participation In EPICS

- EPCS 20100 - Sophomore Participation In EPICS
- EPCS 20200 - Sophomore Participation In EPICS
- GS 19501 - Preparing For Your Undergraduate Research Experience
- GS 29501 - Understanding Your Undergraduate Research Experience I
- GS 39501 - Understanding Your Undergraduate Research Experience II
- GS 49000 - Directed Reading In General Studies
 - Purdue Promise Facilitation Course or Discovery Park Undergr Res
- MA 10800 - Mathematics As A Profession And A Discipline
- MA 17000 - Introduction To Actuarial Science
- MA 48400 - Seminar On Teaching College Algebra And Trigonometry
- MA 49000 - Topics In Mathematics For Undergraduates
- MCMP 49000 - Special Topics
 - Indiv Study or TA for MCMP 20400/MCMP 20500 lab
- PHYS 10400 - First Year Physics Seminar
- PHYS 21700 - Introduction To Current Physics And Forefront Research Honors
- PHYS 23500 - Seminar In Careers In Physics
- PHYS 49000 - Special Assignments
- PHYS 59000 - Reading And Research
- PHYS 59300 - Independent Research
- PSY 39000 - Research Experience In Psychology
- SCI 10000 - Multicultural Leadership Seminar
- SCI 19500 - Special Topics In Science
 - Global Science Leadership Seminar
- SCI 39500 - Special Topics In Science
 - Global Science Experience
- SCI 49000 - Topics In Science For Undergraduates
 - Dean's Leadership Forum
- STAT 17000 - Introduction To Actuarial Science
- STAT 19000 - Topics In Statistics For Undergraduates
 - First Year Statistics Seminar
- STAT 29000 - Topics In Statistics For Undergraduates
 - Rising Above the Storm
- STAT 47201 - Actuarial Models- Life Contingencies
- STAT 47901 - Short Term Actuarial Models
- STAT 49000 - Topics In Statistics For Undergraduates

Notes

- Students who are enrolling in EDCI 49800 or ENTR 48000 during their final semester and wish to receive points toward LBC should alert LBC of their plans at the beginning of the semester.

Prerequisite Information

For current pre-requisites for courses, [click here](#).

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

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Program Information

College of Science Core: Composition and Presentation

Curricular Outcome: Ability to communicate well, both orally and in writing. Students will develop college-level writing and presentation skills through the Technical Writing and Technical Presentation requirement.

FRESHMAN COMPOSITION

TECHNICAL WRITING AND PRESENTATION (TWTP)

Students may elect to take one course to meet the TWTP requirement or a combination of courses. The list of approved courses below contains all course options. Students may also elect to use experiences as defined below to complete this important Science core requirement.

Technical Writing (TW)

The TW requirement may be met by completing one of the following options:

Option 1: Course in technical writing from the list of approved courses; **or**

Option 2: Scholarly publication:

- Paper accepted for publication in a peer-reviewed journal or peer-reviewed conference proceedings in which the student is the lead author or has written the large majority of the paper; **or**
- Paper a College of Science faculty member with expertise in the area deems of publishable quality; **or**
- Three approved papers of at least 1,500 words each, at least one of which makes a strong or persuasive argument

Students wishing to meet the Technical Writing requirement through Option 2 are required to complete the Experiential Learning contract process.

International Students Only: International students whose primary high school/equivalent instruction was not in English must meet the Technical Writing requirement using option 1 only.

Technical Presentation (TP)

The TP requirement may be met by completing one of the following options:

Option 1: Course in technical presentation skills from the list of approved courses; **or**

Option 2: Presentation at a scientific meeting (sole or predominant presenter); **or**

Option 3: Presentation of work at an adjudicated poster session:

- Presentation must be made in the presence of a certified judge, **and**
- Written feedback must be provided to the student; **or**
- Presentation of work (research-based) during an internship or co-op; **or**
- Three approved 10-minute (or longer) presentations within science course(s).

Students wishing to meet the Technical Presentation requirement through Option 2 or Option 3 are required to complete the Experiential Learning Contract process.

International Students Only: International students whose primary high school/equivalent instruction was not in English may meet this requirement with option 1 only.

Special Note: Students completing both COM 11400 (elective) and COM 21700 (Technical Writing and Presentation requirement) may use both courses to meet degree requirements.

First-Year Composition

- ENGL 10600 - First-Year Composition
- ENGL 10800 - Accelerated First-Year Composition
- HONR 19903 - Interdisciplinary Approaches In Writing
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity

Technical Presentation

- BIOL 44100 - Biology Senior Seminar In Genetics
- COM 11400 - Fundamentals Of Speech Communication
- COM 31400 - Advanced Presentational Speaking
- COM 31500 - Speech Communication Of Technical Information
- COM 32400 - Introduction To Organizational Communication
- COM 41500 - Discussion Of Technical Problems
- SCLA 10200 - Transformative Texts, Critical Thinking And Communication II: Modern World

Technical Writing & Presentation

- COM 21700 - Science Writing And Presentation
- CHM 46200 - Intermediate Organic Chemistry

Technical Writing

- ENGL 30400 - Advanced Composition
- ENGL 30900 - Digital Design And Production

- ENGL 41900 - Multimedia Writing
- ENGL 42000 - Business Writing
- ENGL 42100 - Technical Writing
- ENGL 42201 - Writing For The Health And Human Sciences
- ENGL 42400 - Writing For High Technology Industries
- ENGL 43400 - Science And Medical Writing
- ENGL 49000 - Worksite Internship Practicum ENGL 49000 must be taken for 3.00 credits to meet the requirement.
- MGMT 39000 - Junior Level Problems In Management (Strategic Decision Making - Honors)

College of Science Core: Computing

Curricular Outcome: Ability to think and function as a scientist

Students must take a course in computing concepts taught using an interpreted or compiled programming language. Course content will include basic control structures and function calls.

To fulfill this requirement one of the following courses must be completed:

Computing

- CS 15900 - C Programming
- CS 17700 - Programming With Multimedia Objects
- CS 18000 - Problem Solving And Object-Oriented Programming
- ECE 49500 - Selected Topics In Electrical And Computer Engineering - (Intro to Computer Systems - Credit Hours: 3.00)
- ENGR 14200 - Honors Creativity And Innovation In Engineering Design II
- ENGR 16200 - Honors Introduction To Innovation And The Physical Science Of Engineering Design II
- STAT 29000 - Topics In Statistics For Undergraduates - (Introduction to Big Data Analysis - Credit Hours: 3.00)

College of Science Core: Cultural Diversity (Language and Culture)

Curricular Outcome:

Demonstrated breadth of knowledge and cultural appreciation. College of Science students are expected to develop an understanding of at least one other culture in addition to their own through learning a language, taking culture and/or diversity courses, or participating in an approved Study Abroad experience.

This nine-credit core requirement may be met by satisfaction of one of the following options:

1. Three (3) courses in an approved modern language. Biblical Hebrew may not be used to meet this requirement.
2. Two (2) courses in an approved modern second language and an approved culture or diversity course.

3. Two (2) courses in an approved modern language and an approved short-term study abroad program (not less than 8 days) containing a minimum 3-credit course and significant immersion in the local culture.*
4. Three (3) approved culture or diversity courses. See Requirements.
5. An approved study abroad experience.* Students will meet the intent of the Foreign Language and Culture requirement through completion of an approved study abroad program. Once approved, a non-credit waiver will be applied to a student's MyPurduePlan audit. Students will then complete nine credits of elective coursework to meet their 120-credit hour degree requirement. An approved program must satisfy the following criteria:
6. * Approval Process: Students wishing to use an approved study abroad program to meet the Foreign Language and Culture requirement are required to complete the Experiential Learning Contract process.
 - Must take place outside the United States and meet one of the following program requirements:
 1. Approved semester or year-long SA program.
 2. Summer program of at least seven and a half weeks duration.
 3. Students may use an approved short-term study abroad program (not less than 8 days) containing a minimum 3-credit course and significant immersion in the local culture to meet the Culture requirement. Faculty-led programs must now contain an immersion component and thus are approved
 4. Purdue Summer Internship Program
 5. College of Education Block Study Abroad Program (ex. Maymester in Tanzania).
 - Consists of taking courses (minimum 3 credits) and/or working on a research project
 - Has significant immersion in the local culture and language independent of any US-based program in which the student may be participating.
7. International Student status. International students meet the intent of the Foreign Language and Culture requirement through their international experience at Purdue University. A non-credit waiver will be applied to a student's MyPurduePlan audit. Students will then complete nine credits of elective coursework to meet their 120-credit hour degree requirement. See your academic advisor for guidelines and approval.

Curriculum Notice:

Courses which have been taken to meet the Culture requirement may not also be used to meet a student's General Education or Great Issues requirement.

Study Abroad Scholarships

Study Abroad scholarship opportunities are available.

Culture and Diversity Course List

- AAS 27100 - Introduction To African American Studies
- AAS 27700 - African American Popular Culture
- AAS 35900 - Black Women Writers
- AAS 37000 - Black Women Rising
- AAS 37100 - The African American Experience
- AAS 37300 - Issues In African American Studies
- AAS 37500 - The Black Family
- AAS 37600 - The Black Male
- AAS 37700 - African American Sexuality And Society
- AAS 39200 - Caribbean History And Culture
- AAS 47300 - Blacks In Hollywood Film
- AAS 49100 - Special Topics In African American Studies
 - Africa in 20th Century
 - Afro Borinquen Cult&Identity
 - Black Satire and Humor

- Carnival: Re-member Diasp Trad
- Contemporary Issues in Black Education
- Identity in the Midst of Differences
- The Classics and Black Literature
- W.E.B. DuBois
- AAS 57500 - Theories Of African American Studies
- AD 31100 - Ancient Greek Art
- AD 31200 - Ancient Roman Art
- AD 33900 - Women Artists In The 20th Century
- AD 34300 - Northern Renaissance Art
- AD 34400 - Latin American Art In The 20th Century
- AD 34600 - Italian Renaissance Art
- AD 34800 - History Of Islamic Art
- AD 35900 - Medieval European Art
- AD 38000 - Baroque Art
- AD 38200 - A Global History Of Art, Eighteenth-Nineteenth Centuries
- AD 39100 - History Of Chinese Art
- AGE 25000 - Economic Geography Of World Food And Resources
- AGE 34000 - International Economic Development
- AGR 20100 - Communicating Across Culture
- AGRY 28500 - World Crop Adaptation And Distribution
- AGRY 35000 - Global Awareness
- AMST 20100 - Interpreting America
 - African American Pop Culture
 - Asian American Pop Culture
 - Intro Asian American Studies
 - Intro to American Studies: Arab-American Literature
 - Sports in American Culture
- AMST 30100 - Perspectives On America
- AMST 31000 - Invention, Innovation, And Design
- ANTH 20100 - Introduction To Archaeology And World Prehistory
- ANTH 20500 - Human Cultural Diversity
- ANTH 21000 - Technology And Culture
- ANTH 23000 - Gender Across Cultures
- ANTH 25400 - Archaeological Hoaxes, Myths And Frauds
- ANTH 28200 - Introduction To LGBTQ Studies
- ANTH 30700 - The Development Of Contemporary Anthropological Theory
- ANTH 31100 - The Archaeology Of The Ancient Andes
- ANTH 31200 - The Archaeology Of Ancient Egypt And The Near East
- ANTH 32000 - Ancient States And Empires
- ANTH 34000 - Global Perspectives On Health
- ANTH 35800 - African Cultures
- ANTH 37300 - Anthropology Of Religion
- ANTH 37800 - Archaeology And Cultural Anthropology Of Mesoamerica (Mexico, Belize And Guatemala)
- ANTH 37900 - Native American Cultures
- ANTH 38400 - Designing For People: Anthropological Approaches
- ANTH 39200 - Selected Topics In Anthropology
 - Anthropology and Blackness

- Archaeology of Religion and Ritual
- Blackness and Culture
- Emcees&Jihadis Race & Pop Cult
- Race & Religion in the U.S.
- Race, Religion and Popular Culture in America
- The African Amer Experience
- ARAB 23000 - Arabic Literature In Translation
- ARAB 23900 - Arab Women Writers
- ARAB 28000 - Arabic Culture
- ARAB 28100 - Introduction To Islamic Civilization And Culture
- ARAB 33400 - North African Literature And Culture
- ASAM 24000 - Introduction To Asian American Studies
- ASAM 34000 - Contemporary Issues In Asian American Studies
 - Contemporary Issues In Asian American Studies
 - Social Issues in Immigration
- ASEC 49100 - Special Topics In Agricultural Science And Education Communication
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- CHNS 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics in Chinese Civilization and Culture
- CHNS 28100 - Introduction To Chinese Food Culture
- CHNS 34100 - Chinese Literature I: Traditional Chinese Literature
- CLCS 23700 - Gender And Sexuality In Greek And Roman Antiquity
- CHNS 34200 - Chinese Literature II: Modern Chinese Literature
- CHNS 49000 - Special Topics In Chinese Language
 - Food Culture Drinks and Snacks
 - Intro to Chinese Food Culture
 - Introduction to Chinese Films
- CHNS 59400 - Special Topics In Chinese Literature
 - Chinese Classical Tales
 - Chinese Lit and Culture
 - Chinese Poetry & Painting
 - Dream Of Red Chamber
 - Modern Chinese Theatre
 - Poetry of Li Bai and Du Fu
 - Tang Dynasty Poetry
- CLCS 18100 - Classical World Civilizations
- CLCS 23010 - Survey Of Greek Literature In Translation
- CLCS 23100 - Survey Of Latin Literature
- CLCS 23300 - Comparative Mythology
- CLCS 23500 - Introduction To Classical Mythology
- CLCS 23800 - The Tragic Vision
- CLCS 23900 - The Comic Vision
 - Culture And Society In The Age Of Pericles
 - Studies in Greek Warfare
- CLCS 28000 - Topics In Classical Civilization
- CLCS 33700 - The Ancient Epic
- CLCS 33900 - Literature And The Law
- CLCS 38000 - Alexander The Great and Hellenistic World
- CLCS 38100 - Julius Caesar: Statesman, Soldier, Citizen
- CLCS 38300 - The Roman Empire

- CLCS 38500 - Science, Medicine And Magic In The Ancient West
- CLCS 38600 - Ancient Greek Religion
- CLCS 38700 - Roman Religion
- CLCS 48000 - Potters And Society In Antiquity
- CLCS 48100 - Culture And Society In The Age Of Pericles
- CLCS 48300 - Republican Rome
 - Ancient Near Eastern History & Culture
 - Culture And Society In The Age Of Pericles
 - Studies in Greek Warfare
- CLCS 59300 - Special Topics In Classical Literature
- CMPL 23000 - Crossing Borders: Introduction To Comparative Literature
 - Arab-American Literature
 - Arabic Culture
 - Nature in German Literature
 - Soviet Literature and Beyond
 - Women Writers in Translation
- COM 22400 - Communicating In The Global Workplace
- COM 30300 - Intercultural Communication
- COM 31200 - Rhetoric In The Western World
- COM 37600 - Communication And Gender
- COM 38100 - Gender And Feminist Studies In Communication
- CSR 33200 - Cross-Cultural Marketing And International Retailing
- EDCI 28500 - Multiculturalism And Education
- EDPS 30000 - Student Leadership Development
- EDPS 30100 - Peer Counseling Training
- EDPS 49000 - Individual Research And Teaching Experience
- ENGL 22500 - Literature, Inequality, And Injustice
- ENGL 22800 - Language And Social Identity
- ENGL 23000 - Great Narrative Works
- ENGL 23200 - Thematic Studies In Literature
 - Arab Women Writers
 - Arab-American Literature
 - Arabic Culture
 - Contemporary Foreign Women Writers
 - German Folk & Fairy Tales
 - Intro to Islamic Civ & Cul
 - Italian Women Writers in Translation
 - Nature in German Literature
 - Russian Fairy Tales
 - Span Am Lit in Trans
 - Women Writers in Translation
 - Russian Fairy Tales
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 24900 - Great British Books
- ENGL 25700 - Literature Of Black America
- ENGL 25800 - Nobel Prize Winners In Literature
- ENGL 26200 - Greek And Roman Classics In Translation
- ENGL 26400 - The Bible As Literature
- ENGL 26600 - World Literature: From The Beginnings To 1700 A.D.

- ENGL 26700 - World Literature: From 1700 A.D. To The Present
- ENGL 33000 - Games And Diversity
- ENGL 33100 - Medieval English Literature
- ENGL 33300 - Renaissance English Literature
- ENGL 33500 - Restoration And Eighteenth-Century English Literature
- ENGL 33700 - Nineteenth-Century English Literature
- ENGL 33900 - Twentieth-Century British Literature
- ENGL 35200 - Native American Literature
- ENGL 35400 - Asian American Literature
- ENGL 35800 - Black Drama
- ENGL 35900 - Black Women Writers
- ENGL 36000 - Gender And Literature
- ENGL 36500 - Literature And Imperialism
- ENGL 36600 - Postcolonial Literatures
- ENGL 38100 - The British Novel
- ENGL 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- ENGL 39600 - Studies In Literature And Language
 - Latina/o Of The U S
 - Maghrebi Literature & Culture
 - Spirit of Italian Comedy
 - Theories of Global Studies
- ENGL 41200 - Studies In Genre
 - Black Satire and Humor
 - Black Speculative Fiction
- ENGL 41400 - Studies In Literature And Culture
 - Literature and Disability: Deaf & Blind Culture
 - The Black Male Image
 - War, Terrorism, Globalization, And The Role Of Literature
 - Witchcraft and Wonder in Early American Literature
- ENGL 43900 - Topics In Disability Studies
 - Bodies & Cultures
 - Disability in Fiction & Memoir
- ENGL 46000 - Studies In Women's Literature
 - Modernist Women Writers
 - Studies in Women's Literature
- ENGL 46200 - The Bible As Literature: The Old Testament
- ENGL 46300 - The Bible As Literature: The New Testament
- ENGL 52800 - Medieval English Literature
- ENGL 53200 - The English Novel In The Nineteenth Century
- ENGL 53800 - English Drama From The Restoration To The Modern Period
- ENGL 54700 - British Romanticism
- ENGL 54800 - Victorian Literature
- ENGL 55700 - Nineteenth-Century African-American Narrative
- ENGL 57900 - Modern British Fiction
- ENGL 58300 - U S Ethnic/Multicultural Literature
 - Contemporary African American Fiction
- ENGL 59600 - Advanced Studies In Literature Or Language
 - ModEuroRhetorc,Poetcs,Narrativ
- ENTR 47000 - Women And Leadership

- FNR 48800 - Global Environmental Issues
- FR 24100 - Introduction To The Study Of French Literature
- FR 33000 - French Cinema
- FR 34100 - French Literature I: From The Middle Ages To The Enlightenment
- FR 34200 - French Literature II: The 19th And 20th Centuries
- FR 38000 - Special Topics In French Culture And Civilization
 - La Gastronomie
- FR 39400 - Special Topics In French Literature
 - Out of Africa
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization
- FR 54100 - Renaissance French Literature
- FR 54900 - French Literature And Film
- FR 58100 - French Culture
- FR 59400 - Special Topics In French Literature
 - Introduction to Francophone Literature
 - Literature Quebecoise
- FVS 49100 - Special Topics In Film/Video Studies
 - Jewish Cinema
 - Mafia And The Movies
- GER 23000 - German Literature In Translation
 - German Fairy Tales
 - German Folk & Fairy Tales
 - Myths & Legends: Elves to Elvis
 - Nature and the Environment in German Literature and Thought
 - Supernatural & Uncanny Ger Lit
- GER 24100 - Introduction To The Study Of German Literature
- GER 28000 - German Special Topics
 - Beer and Brewing in German Culture
- GER 33000 - German Cinema
- GER 34100 - German Literature I: From The Middle Ages To The 18th Century
- GER 34200 - German Literature II: From The 18th Century To The 21st Century
- GER 48000 - German Civilization
- GER 54400 - German Romanticism
- GER 54500 - German Prose From Naturalism To The Present
- GER 55100 - Lyric Poetry From Romanticism To The Present
- GER 55400 - German Drama Before Naturalism
- GER 55500 - German Drama From Naturalism To The Present
- GER 58100 - German Culture
- GER 59400 - Special Topics In German Literature
- HDFS 28000 - Diversity In Individual And Family Life
- HEBR 28400 - Ancient Near Eastern History And Culture
- HEBR 38000 - Israel And The Modern World: Cinema, Literature, History And Politics
- HIST 10300 - Introduction To The Medieval World
- HIST 10400 - Introduction To The Modern World
- HIST 10500 - Survey Of Global History
- HIST 20100 - Special Topics In History
- HIST 21000 - The Making Of Modern Africa
- HIST 21100 - The Global Field: World Soccer And Global History

- HIST 22800 - English History To 1688
- HIST 23800 - History Of Russia From Medieval Times To 1861
- HIST 24000 - East Asia And Its Historic Tradition
- HIST 24100 - East Asia In The Modern World
- HIST 24300 - South Asian History And Civilizations
- HIST 24500 - Introduction To The Middle East History And Culture
- HIST 24600 - Modern Middle East And North Africa
- HIST 25000 - United States Relations With The Middle East And North Africa
- HIST 27100 - Introduction To Colonial Latin American History (1492-1810)
- HIST 27200 - Introduction To Modern Latin American History (1810 To The Present)
- HIST 30200 - Historical Topics
 - African American Women's Intellectual Tradition
 - Afro-American Athletes & Race
 - Ancient Judaism & Early Christianity
 - Arab-Israeli Conflict
 - Black Pop Culture&Civil Rghts
 - Controversies Contemp Korea
 - Creoles,Vampires,Quadroon Balls
 - Gender & Medieval Religion
 - Gender and War in the Time of Napoleon - Honors
 - History of Ireland: 1556-1921
 - History of Korea
 - Imperial Spain 1469-1714
 - Introduction to Jewish Studies
 - Modern Korean History
 - Religion in American History & Culture
 - Religion in American Society & Politics 1607-1877
 - The Bible & its Early Interpreters
 - Youth in Revolutionary China
 - Global 1960s Revolution
- HIST 31405 - Science, Technology, Engineering And Mathematics (STEM) And Gender
- HIST 31700 - A History Of The Christian Church And The Expansion Of Christianity I
- HIST 31800 - A History Of The Christian Church And The Expansion Of Christianity II
- HIST 32000 - The World Of Charlemagne
- HIST 32105 - Spain: The First Global Empire, 1469-1713
- HIST 32300 - German History
- HIST 32400 - Modern France
- HIST 32900 - History Of Women In Modern Europe
- HIST 33000 - History Of The British Empire And Commonwealth, 1783 To 1960
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 33900 - Traditional China
- HIST 34000 - Modern China
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan
- HIST 34705 - History Of Religion In America
- HIST 35100 - The Second World War
- HIST 35700 - History Of Southern Africa Since 1400
- HIST 35900 - Gender In East Asian History
- HIST 36101 - Violence, War, And Militarism In Modern Africa

- HIST 36600 - Hispanic Heritage Of The United States
- HIST 37700 - History And Culture Of Native America
- HIST 38400 - History Of Aviation
- HIST 38700 - History Of The Space Age
- HIST 39200 - Caribbean History And Culture
- HIST 39500 - Junior Research Seminar
 - Afro Amer Athl & Civil Rights
 - Gender & War in Modern Europe
 - German-Occupied Europe
 - Indian Crossroads-Colonial City
 - Occupied Europe
 - Politics Mod Latin America
 - The Civil Rights Movement
- HIST 39600 - African American History To 1877
- HIST 40700 - Road To World War I: Europe 1870-1919
- HIST 40800 - Dictatorship And Democracy: Europe 1919-1945
- HIST 41300 - Modern European Imperialism: Repression and Resistance
- HIST 41800 - European Society And Culture 1450-1800
- HIST 42300 - Advanced Topics In Modern Germany
 - Divided Germany
 • Germany & France: War, Peace & Memory
- HIST 43000 - Women In African History
- HIST 44100 - Africa In The Twentieth Century
- HIST 46900 - Black Civil Rights Movement
- HIST 47700 - Native American Women's History
- HIST 48800 - History Of Sexual Regulation In The United States
- HIST 49200 - Seminar In Historical Topics
 - 18th-Century Pacific Worlds
 - Afro American & Amer Labor Movement
 - Catholic Priests & Nuns Movies
 - Gauchos and Cowboys on the Argentine Frontier
 - History Of Argentina
 - History of Argentina 1810-Present
 - Late Imperial China
 - Life & Career of Winston Churchill
 - Race, Gender, Culture US - Honors
 - Gender Revolution in Modern American
 - Indian Removal 19th Cent US
 - Interwar Jewish Experiences in E. Central Europe, Russia, and Middle East
 - Native America and Colonial Settlement
 - Rel & Pol In Mid Amer
 - Spain in American Southwest
 - War and Gender
 - Women Modern America 1950-Pres
- HIST 49500 - Research Seminar In Historical Topics
 - Gender Revolution in Modern American
 - Indian Removal 19th Cent US
 - Interwar Jewish Experiences in E. Central Europe, Russia, and Middle East
 - Native America and Colonial Settlement
 - Rel & Pol In Mid Amer
 - Spain in American Southwest
 - War and Gender

- Women Modern America 1950-Pres
- Race & Civil Rights Movmnt
- HIST 51200 - England Under The Stuarts
- HIST 54800 - Conflict In East Asia: Twentieth Century
- HIST 57600 - Problems In Latin American History
- HIST 59400 - Afro-American Thought And Ideology
- HIST 59500 - The Holocaust And Genocide
- PUBH 22500 - Contemporary Women's Health
- HONR 39900 - Interdisciplinary Honors - Special Topics Seminar
 - Introduction to Visual Studies
- IDIS 49100 - Special Topics In Interdisciplinary Studies
 - Arabic Culture
 - British Literature
 - Cultural Orphans in Latin America
 - Gender & Medieval Religion
 - Intro to Islamic Civ & Cul
 - Jewish Cinema
 - Race & Religion in the US
 - Religion & Violence
 - Two Koreas: Pol Econ Rivalry
 - Women Writers in Translation
- ITAL 23100 - Dante's Divine Comedy
- ITAL 28100 - The Italian Renaissance And Its Scientific And Cultural Impact On Western Civilization
- ITAL 33000 - The Italian Cinema
- ITAL 33300 - The Spirit Of Italian Comedy
- ITAL 33500 - Italian-American Cinema
- ITAL 34100 - Italian Literature I: From The Middle Ages To The Enlightenment
- ITAL 34200 - Italian Literature II: From Romanticism To The Present
- ITAL 39300 - Special Topics In Italian Literature Or Cinema
- ITAL 49300 - Advanced Topics In Italian Literature Or Cinema
- JPNS 24100 - Introduction To The Study Of Japanese Literature
- JPNS 28000 - Introduction To Modern Japanese Civilization
- JPNS 33000 - Japanese Cinema
- JPNS 34100 - Japanese Literature I: Modern Japanese Literature
- JPNS 48000 - Japanese Civilization
- JPNS 49000 - Special Topics In Japanese Language
 - Contemporary Japanese Popular Literature & Culture
 - Japanese Society Through Songs
 - JPNS Cinema II:Enter & Othr Fm
- JPNS 54300 - Modern Japanese Popular Literature And Culture
- JPNS 59400 - Special Topics In Japanese Literature
 - Modern Japanese Fiction
- JWST 33000 - Introduction To Jewish Studies
- LALS 25000 - Introduction To Latin American And Latino Studies
- LALS 26000 - U S Latino Culture
- LALS 49500 - Humanigration: A Border Experience
- LATN 34300 - Roman Oratory
- LATN 34400 - Roman Epic
- LATN 34500 - Roman Elegy

- LATN 34700 - Roman Comedy
- LATN 44300 - Roman Satire
- LATN 44400 - Roman Philosophers
- LATN 44600 - Roman Historians
- LC 23500 - East Asian Literature In Translation
- LC 23900 - Women Writers In Translation
- LC 33100 - Comparative Literature In Translation
 - Kabbalah and Jewish Mysticism
 - Topics in Brazilian Culture
 - The Middle Ages on Film
- LC 33300 - The Middle Ages On Film
- LC 49000 - Special Topics In Foreign Languages And Literatures
 - Korean Language in Culture & Society
- LC 59300 - Special Topics In Literature
- MARS 22000 - Introduction To Medieval And Renaissance Studies
 - The Tudors
 - Renaissance Mind: Florence 1300-1600
 - The Bible as Literature: The New Testament
 - Tudors in Literature and Film
- MARS 42000 - Medieval And Renaissance Studies Seminar
- OLS 45400 - Gender And Diversity In Management
- OLS 45600 - Leadership In A Global Environment
- PHIL 11000 - The Big Questions: Introduction To Philosophy
- PHIL 11400 - Global Moral Issues
- PHIL 20600 - Introduction To Philosophy Of Religion
- PHIL 22500 - Philosophy And Gender
- PHIL 23000 - Religions Of The East
- PHIL 23100 - Religions Of The West
- PHIL 24200 - Philosophy, Culture, And The African American Experience
- PHIL 29300 - Selected Topics In Philosophy
 - Science and Religion
- PHIL 30100 - History Of Ancient Philosophy
- PHIL 30200 - History Of Medieval Philosophy
- PHIL 30300 - History Of Modern Philosophy
- PHIL 40200 - Studies In Medieval Christian Thought
- PHIL 40600 - Intermediate Philosophy Of Religion
- PHIL 49000 - Advanced Topics In Philosophy
 - Early Greek Philosophy
 - Philosophy of Race
- PHIL 50100 - Studies In Greek Philosophy
- PHIL 50500 - Islamic And Jewish Philosophy And The Classical Tradition
- PHIL 50600 - Advanced Philosophy Of Religion
- POL 13000 - Introduction To International Relations
- POL 14100 - Governments Of The World
- POL 22200 - Women, Politics, And Public Policy
- POL 22900 - Emerging Problems In Political Science
 - The US, Cuba & Latin America
- POL 23100 - Introduction To United States Foreign Policy
- POL 23500 - International Relations Among Rich And Poor Nations

- POL 32300 - Comparative Environmental Policy
- POL 32600 - Black Political Participation In America
- POL 34500 - West European Democracies In The Post-Industrial Era
- POL 34700 - Introduction To Latin American Politics
- POL 34800 - East Asian Politics
- POL 35100 - Foundations Of Western Political Theory: From Plato To The Reformation
- POL 36000 - Women And The Law
- POL 43000 - Selected Problems In International Relations
 - IR: The Iraq Wars
 - Theories of IR
- POL 49100 - Political Science Senior Seminar
 - American Race Relations
 - Public Policy: Race, Class, Gender
 - Race, Class and Political Representation
 - Race, Gender & Political Representation
 - The Iraq Wars
 - Politics of Japan and China
- POL 49300 - Interdisciplinary Undergraduate Seminar
 - Introduction to Jewish Studies
- POL 52000 - Special Topics In Public Policy
 - Gender, Race, And Class: Public Policy
- PSY 23900 - The Psychology Of Women
- PSY 33500 - Stereotyping And Prejudice
- PSY 39200 - Special Topics In Psychology
 - Diversity and Inclusion
- PSY 59100 - Topics In Psychology
 - Acceptance and Inclusion
 - Cross Cultural Social Psy
 - Ethnic Minority Issues in Psy
- PTGS 33000 - Brazilian, Portuguese, And African Cinema
- PTGS 55100 - Brazilian Poetry
- PTGS 55500 - Brazilian Drama
- PTGS 55700 - Brazilian Fiction
- PTGS 59400 - Special Topics In Luso-Brazilian Literature
 - Clarice Lispector
 - Latin American Short Story
 - Luso-Brazilian Literature
 - Machado De Assis
- REL 20000 - Introduction To The Study Of Religion
- REL 20100 - Interpretation Of The New Testament
- REL 20200 - Interpretation Of The Old Testament
- REL 20300 - Theology Of Paul
- REL 20400 - Introduction To Christian Theology
- REL 23000 - Religions Of The East
- REL 23100 - Religions Of The West
- REL 25000 - A History Of The Christian Afterlife
- REL 31700 - Ancient Judaism And Early Christianity
- REL 31800 - The Bible And Its Early Interpreters
- REL 35100 - Christian Mysticism
- REL 45000 - Christian Ethics

- REL 45100 - Christology
- REL 45200 - Systematic Theology
- RUSS 29800 - Special Topics In Russian
 - Russian Fairy Tales
- RUSS 33000 - Russian And East European Cinema
- RUSS 34100 - Russian Literature In The Nineteenth Century
- RUSS 34200 - Revolution, Repression, Renewal: Soviet Literature And Beyond
- RUSS 38000 - Russian Culture And Civilization I
- RUSS 38100 - Russian Culture And Civilization II
- RUSS 48000 - Russian Civilization
- RUSS 58100 - Russian Culture
- SOC 22000 - Social Problems
- SOC 31000 - Race And Ethnicity
- SOC 33800 - Global Social Movements
- SOC 33900 - Introduction To The Sociology Of Developing Nations
- SOC 35600 - Hate And Violence
- SOC 36700 - Religion In America
- SOC 36900 - Religion And Chinese Society
- SOC 45000 - Gender Roles In Modern Society
- SOC 56700 - Religion In Social Context
- SOC 56800 - Religion And Society
- SPAN 23100 - Cervantes' Don Quixote
- SPAN 23500 - Spanish American Literature In Translation
- SPAN 24100 - Introduction To The Study Of Hispanic Literature
- SPAN 28000 - Second-Year Spanish: Special Topics
 - Intro Latin Am & Latino Study
- SPAN 33000 - Spanish And Latin American Cinema
- SPAN 33500 - The Literature Of The Spanish-Speaking Peoples In The United States
- SPAN 34100 - Hispanic Literature I: Poetry And Drama
- SPAN 34200 - Hispanic Literature II: Prose
- SPAN 48000 - Spanish Civilization
- SPAN 48100 - Spanish Culture
- SPAN 48200 - Latin American Civilization
- SPAN 48300 - Latin American Culture
- SPAN 49800 - Advanced Topics In Spanish
 - Chicana/o & Latina/o Lit Trans
 - Food Culture Hispanic World
 - Hispanic Film in Spanish
- SPAN 54000 - Spanish Literature Of The Middle Ages
- SPAN 54100 - Spanish Literature Of The Golden Age
- SPAN 54200 - Cervantes Don Quijote
- SPAN 54300 - Spanish Literature Of The 18th And 19th Centuries
- SPAN 54500 - Spanish Literature Of The 20th Century
- SPAN 55000 - Spanish American Literature Of The Colonial Period
- SPAN 55100 - Spanish American Literature Of The 19th Century
- SPAN 55200 - Spanish American Literature From 1900 To 1970
- SPAN 55300 - Spanish American Literature From 1970- Present
- SPAN 55500 - Latino/a Literature

- SPAN 59400 - Special Topics In Hispanic Literature
 - Hispanic Film in Spani Part II
 - Modern Spanish Comic Theater
 - Spanish Literature of the Middle Ages
- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction
- WGSS 28100 - Selected Topics In Women's, Gender, And Sexuality Studies
 - Arab Women Writers
 - Contemporary Foreign Women Writers In Translation
 - Spanish American Literature in Translation
 - Wom Pol and Publ Pol
 - Women Writers in Translation
 - Women, Gender, And Leadership
 - 20th Century Women Artists
- WGSS 28200 - Introduction To LGBT Studies
- WGSS 38000 - Gender And Multiculturalism
- WGSS 38100 - Women Of Color In The United States
- WGSS 38200 - Love, Sex And Sexuality
- WGSS 38300 - Women And Work
- WGSS 39000 - Selected Topics In Women's, Gender And Sexuality Studies
 - Gender and Politics in Early Modern Europe
 - Literature, Queer Studies & Disability
 - Queens & Empresses in Early Modern Europe
 - Sports & Popular Feminism
 - STEM and Gender
 - US Women Since 1870
 - Women and Health in America
 - Women and Leadership
 - Women and the Law
- WGSS 48000 - Feminist Theory
- WGSS 48200 - Interdisciplinary Studies In Sexuality: Scholarship On Lesbian And Gay Issues
- WGSS 48300 - Feminisms In Global Perspective
- WGSS 49900 - Independent Study In Women's, Gender And Sexuality Studies
 - African American Women and Activism
 - Black Women
 - Gender Revolution in Modern America
- WGSS 59900 - Selected Topics In Women's Gender And Sexuality Studies
 - Bad Mothers in American Literature
 - Gender & Sexuality in Sport
 - Native Amer Women Writers

Language and Culture Electives/Foreign Language Requirement

This requirement may be met with either a Two Course Sequence (10100, 10200 and Culture/Diversity Course) or a Three Course Sequence (10100, 10200 and 20100) or an approved theme of three Culture/Diversity Courses

- ARAB 10100 - Standard Arabic Level I
- ARAB 10200 - Standard Arabic Level II
- ARAB 20100 - Standard Arabic Level III
- ASL 10100 - American Sign Language I
- ASL 10200 - American Sign Language II

- ASL 20100 - American Sign Language III
- CHNS 10100 - Chinese Level I
- CHNS 10200 - Chinese Level II
- CHNS 20100 - Chinese Level III
- FR 10100 - French Level I
- FR 10200 - French Level II
- FR 20100 - French Level III
- GER 10100 - German Level I
- GER 10200 - German Level II
- GER 20100 - German Level III
- HEBR 10100 - Modern Hebrew Level I
- HEBR 10200 - Modern Hebrew II
- HEBR 20100 - Modern Hebrew Level III
- ITAL 10100 - Italian Level I
- ITAL 10200 - Italian Level II
- ITAL 20100 - Italian Level III
- JPNS 10100 - Japanese Level I
- JPNS 10200 - Japanese Level II
- JPNS 20100 - Japanese Level III
- LATN 10100 - Latin Level I
- LATN 10200 - Latin Level II
- LATN 20100 - Latin Level III
- PTGS 10100 - Portuguese Level I
- PTGS 10200 - Portuguese Level II
- PTGS 20100 - Portuguese Level III
- RUSS 10100 - Russian Level I
- RUSS 10200 - Russian Level II
- RUSS 20100 - Russian Level III
- SPAN 10100 - Spanish Level I
- SPAN 10200 - Spanish Level II
- SPAN 20100 - Spanish Level III

College of Science Core: General Education

General Education Requirement

Outcome: Demonstrated breadth of knowledge and cultural appreciation. College of Science students will gain insights in the Humanities, Social Sciences, and/or Management to deepen their awareness of other disciplines of thought which complements and informs their scientific understanding of the world. The General Education requirement is met through completion of three courses (9 credits total) that have been approved to meet requirement. Students are encouraged to speak with their academic advisors about course options that may allow them to further an interest or develop a new one while meeting this important requirement.

The General Education list below contains approved courses effective as of January, 2015*. Students may use only ONE course (3 credits) from the following subjects: AGEC, MGMT, OBHR, ECON, or ENTR to meet their general education requirement. Approved courses may be used in any combination to satisfy the General Education requirement. Presence of a course on the list does not guarantee that the course will be available during all terms.

Curriculum Notices:

- Some courses on the General Education approved course list share the same course subject and number, however, they have different or variable titles. Only those titles listed are approved. Consult with your advisor if you have a question about the suitability of a course.
- Courses which have been taken to meet the General Education requirement may not also be used to meet a student's Culture/Diversity or Great Issues requirement.

College of Science students are invited to nominate courses for the general education requirement. Please submit course suggestions to your academic advisor. A single course may not be used to meet both the General Education and Great Issues requirement.

Approved Courses by Subject: African American Studies - Entrepreneurship

- AAS 27100 - Introduction To African American Studies (satisfies Human Cultures Humanities for core)
- AAS 27700 - African American Popular Culture
- AAS 35900 - Black Women Writers
- AAS 37000 - Black Women Rising
- AAS 37100 - The African American Experience - (The Black Athlete, African American Health, Anthropology and Blackness, Blackness & Culture , Issues in Contemporary Africa, Racism and Prejudice in America, African American Music, Black Leisure & Recreation)
- AAS 37300 - Issues In African American Studies - (Afr Diaspora Caribbn&LtnAmer, African American Women and Activism, Black Male Youth Culture in the Wire, Black Speculative Fiction, Blackness and Culture, History of Injustice in the US, Issues in African American Studies, Lit of the African Diaspora, Phil, Cult, African, American, Race and Religion in the U.S., Race, Religion & Popular Culture in the U.S.; America, Studies in African Diaspora, The Harlem Renaissance, Toni Morrison, The Black Community)
- AAS 37500 - The Black Family
- AAS 37600 - The Black Male
- AAS 37700 - African American Sexuality And Society
- AAS 39200 - Caribbean History And Culture
- AAS 47300 - Blacks In Hollywood Film
- AAS 49100 - Special Topics In African American Studies - (African-American Protest Lit, Afro Borinquen Cult&Identity, Black Satire and Humor, Carnival: Re-member Diasp Trad, Contemporary Issues in Black Education, Identity in the Midst of Differences, Teaching the Wire, The Classics and Black Literature, W.E.B. DuBois, African American Chorl Foundtns, Cultural Heritage)
- AAS 57500 - Theories Of African American Studies
- AD 12500 - Introduction To Interior Design
- AD 22600 - History Of Art To 1400 (satisfies Human Cultures Humanities for core)
- AD 22700 - History Of Art Since 1400 (satisfies Human Cultures Humanities for core)
- AD 25100 - History Of Photography I (satisfies Human Cultures Humanities for core)
- AD 25500 - Art Appreciation (satisfies Human Cultures Humanities for core)
- AD 31100 - Ancient Greek Art
- AD 31200 - Ancient Roman Art
- AD 33400 - New Media Culture
- AD 33900 - Women Artists In The 20th Century
- AD 34300 - Northern Renaissance Art
- AD 34400 - Latin American Art In The 20th Century
- AD 34600 - Italian Renaissance Art
- AD 34800 - History Of Islamic Art

- AD 35900 - Medieval European Art
- AD 38000 - Baroque Art
- AD 38200 - A Global History Of Art, Eighteenth-Nineteenth Centuries
- AD 38300 - Modern Art (satisfies Human Cultures Humanities for core)
- AD 38400 - Contemporary Art (satisfies Human Cultures Humanities for core)
- AD 38500 - History Of Interior Design
- AD 39100 - History Of Chinese Art
- AD 39500 - History Of Design
- AD 45400 - Modern Architecture
- AGECE 21700 - Economics (satisfies Behavioral/Social Science for core)
- AMST 10100 - America And The World
- AMST 20100 - Interpreting America - (African American Pop Culture, American Social Movements - Honors, Asian American Pop Culture, Automobiles in America, Fan Users and Games, Global Habitats, Community Development & Sustainability, Electronic Music & Pop Culture, Fashion & Technology, Interpreting America, Intro Asian American Studies, Intro to American Studies: Arab-American Literature) (select options may satisfy Human Cultures Humanities for core)
- AMST 30100 - Perspectives On America - (1960's America, African-American Protest Lit, American Beauty, American Representations of the Middle East and North Africa, American Studies/Global Studies, American Virgin, Arabic Lit in Translation, Beat Generation and American Culture, Civil War Memory, Contemporary Issues in Asian American Studies, Cultures of Beauty, Democracy and Education, Diversity in American University, Food in Modern America, Gender & Revolution in Modern America, Gender, Media & Pop Culture, Gender, Science & Technology, Global Health Sustainability & Com Dev, Intro Asian American Studies, Living History, Muslims in America, New Media Culture, Race, Religion, and Popular Culture in America, Sex, Race, and Science, Sport/Gender, Technology, Culture & Society, The Color Line, The Other Great Depression - Honors, Virtual Reality, Women and Health in America, Zora Neale Hurston, Understanding the NFL, Social Issues Immigration, Spanish American Literature in Translation, Theories of Global Studies, Electronic Music & Pop Culture, New Media, Data Viz For Societal Problems, The 1960's Rock to Revolution)
- AMST 31000 - Invention, Innovation, And Design
- AMST 32500 - Sports, Technology, And Innovation
- ANTH 10000 - Being Human: Introduction to Anthropology (fulfills Behavior/Social Science for core)
- ANTH 20100 - Introduction To Archaeology And World Prehistory (fulfills Behavior/Social Science for core)
- ANTH 20300 - Biological Bases Of Human Social Behavior (fulfills Behavior/Social Science for core)
- ANTH 20400 - Human Origins
- ANTH 20500 - Human Cultural Diversity (fulfills Behavior/Social Science for core)
- ANTH 21000 - Technology And Culture (satisfies Science, Technology and Society for core)
- ANTH 21200 - Culture, Food And Health
- ANTH 23000 - Gender Across Cultures (fulfills Behavior/Social Science for core)
- ANTH 23500 - The Great Apes
- ANTH 25400 - Archaeological Hoaxes, Myths And Frauds
- ANTH 28200 - Introduction To LGBTQ Studies
- ANTH 30700 - The Development Of Contemporary Anthropological Theory
- ANTH 31000 - Mortuary Practices Across Cultures
- ANTH 31100 - The Archaeology Of The Ancient Andes
- ANTH 31200 - The Archaeology Of Ancient Egypt And The Near East
- ANTH 31300 - Archaeology Of North America
- ANTH 32000 - Ancient States And Empires
- ANTH 32700 - Environment And Culture

- ANTH 33500 - Primate Behavior
- ANTH 33600 - Human Variation
- ANTH 33700 - Human Diet: Origins And Evolution
- ANTH 34000 - Global Perspectives On Health
- ANTH 34100 - Culture And Personality
- ANTH 35800 - African Cultures
- ANTH 37000 - Ethnicity And Culture
- ANTH 37300 - Anthropology Of Religion
- ANTH 37700 - Anthropology Of Hunter-Gatherer Societies
- ANTH 37800 - Archaeology And Cultural Anthropology Of Mesoamerica (Mexico, Belize And Guatemala)
- ANTH 37900 - Native American Cultures (fulfills Behavior/Social Science for core)
- ANTH 38000 - Using Anthropology In The World
- ANTH 38400 - Designing For People: Anthropological Approaches
- ANTH 39200 - Selected Topics In Anthropology - (Anthropology of Water: Development & Justice, Anthropology and Blackness, Anthropology of Reproductive Health, Anthropology of Tourism & Global Culture, Anthropology of Violence, Archaeology of Religion and Ritual, Blackness and Culture, Community Engagement, Cult Shaping Violence, Emcees & Jihadis Race & Pop Cult, Ethnicity & Culture, People & Parks: Anthropology of Conservation, Pregnancy Birth & Babies, Race & Religion in the U.S., Race, Religion and Popular Culture in America, Sustain Dev & Sovern Africa - Honors, The African Amer Experience, Urban-Rural Change in Latin America, Anthropology of Beer Craft, Visual Anthropology, Myths & Hoaxes in Archaeology)
- ANTH 40400 - Comparative Social Organization
- ANTH 41400 - Introduction To Language And Culture
- ANTH 42500 - Archaeological Method And Theory
- ANTH 43600 - Human Evolution
- ANTH 48200 - Sexual Diversity In Global Perspectives
- ANTH 50400 - Archaeological Theory
- ANTH 50500 - Culture And Society
- ANTH 50700 - Theory In Sociocultural Anthropology
- ANTH 53400 - Human Osteology
- ANTH 53500 - Foundations Of Biological Anthropology
- ANTH 53600 - Primate Ecology
- ANTH 57500 - Economic Anthropology
- ANTH 59200 - Selected Topics In Anthropology - (Anth Ed: Race, Gender, Class & Idnt, Applied Anthropology, Developmental Anthropology, Evidence and Expertise, Human Genitals and Cultures, Medical Anthropology, Anthropolgy of Aging)
- ARAB 23000 - Arabic Literature In Translation
- ARAB 23900 - Arab Women Writers
- ARAB 28000 - Arabic Culture (satisfies Human Cultures Humanities for core)
- ARAB 28100 - Introduction To Islamic Civilization And Culture
- ARAB 33400 - North African Literature And Culture
- ASAM 24000 - Introduction To Asian American Studies
- ASAM 34000 - Contemporary Issues In Asian American Studies
- ASEC 49100 - Special Topics In Agricultural Science And Education Communication - (Consequences of Race and Privilege in Today's American)
- ASL 28000 - American Deaf Community: Language, Culture, And Society
- CHNS 24100 - Introduction To The Study Of Chinese Literature
- CHNS 28000 - Topics in Chinese Civilization and Culture

- CHNS 28100 - Introduction To Chinese Food Culture
- CHNS 33000 - Introduction To Chinese Cinema
- CHNS 34100 - Chinese Literature I: Traditional Chinese Literature
- CHNS 34200 - Chinese Literature II: Modern Chinese Literature
- CHNS 49000 - Special Topics In Chinese Language - (Food Culture Drinks and Snacks, Intro to Chinese Food Culture, Introductions to Chinese Films)
- CHNS 59400 - Special Topics In Chinese Literature - (Chinese Classical Tales, Chinese Lit and Culture, Chinese Poetry & Painting, Dream of Red Chamber, Modern Chinese Theatre, Poetry of Li Bae and Du Fu, Special Topics in Chinese Literature, Tang Dynasty Poetry)
- CLCS 18100 - Classical World Civilizations (satisfies Behavior/Social Science for core)
- CLCS 23010 - Survey Of Greek Literature In Translation (satisfies Human Cultures Humanities for core)
- CLCS 23100 - Survey Of Latin Literature (satisfies Human Cultures Humanities for core) (satisfies Written Communication for core)
- CLCS 23300 - Comparative Mythology (satisfies Human Cultures Humanities for core)
- CLCS 23500 - Introduction To Classical Mythology (satisfies Human Cultures Humanities for core)
- CLCS 23700 - Gender And Sexuality In Greek And Roman Antiquity (satisfies Human Cultures Humanities for core) (satisfies Written Communication for core)
- CLCS 23800 - The Tragic Vision (satisfies Human Cultures Humanities for core)
- CLCS 23900 - The Comic Vision
- CLCS 28000 - Topics In Classical Civilization - (Ancient Near Eastern History & Culture, Culture and Society in the Age of Pericles, Studies in Greek Warfare)
- CLCS 33700 - The Ancient Epic
- CLCS 33900 - Literature And The Law (satisfies Human Cultures Humanities for core) (satisfies Written Communication for core)
- CLCS 38000 - Alexander The Great and Hellenistic World
- CLCS 38100 - Julius Caesar: Statesman, Soldier, Citizen
- CLCS 38300 - The Roman Empire
- CLCS 38400 - Ancient Western Medicine
- CLCS 38500 - Science, Medicine And Magic In The Ancient West
- CLCS 38600 - Ancient Greek Religion
- CLCS 38700 - Roman Religion
- CLCS 48000 - Potters And Society In Antiquity
- CLCS 48100 - Culture And Society In The Age Of Pericles
- CLCS 48300 - Republican Rome
- CLCS 59300 - Special Topics In Classical Literature - (The Classics and Black Literature)
- CMPL 23000 - Crossing Borders: Introduction To Comparative Literature - (Arab Women Writers, Arab-American Literature, Arabic Culture, Arthurian Lit: Medieval to Mod, Brit Lit thru 18 Ct, Dragons, Intro to Comparative and Arabic Literature, Intro to Comparative Literature, Intro to Islamic Civ & Cul, Israel & the Modern World, Italian Women Writers in Translation, Myths & Legends: Elves to Elvis, Nature in German Literature, Philosophy of Art, Russian Literature II, Soviet Literature and Beyond, Spanish American Literature in Translation, Women Writers in Translation)
- CMPL 26600 - World Literature: From The Beginnings To 1700 A D (satisfies Human Cultures Humanities for core)
- CMPL 26700 - World Literature: From 1700 A D To The Present (satisfies Human Cultures Humanities for core)
- COM 22400 - Communicating In The Global Workplace (satisfies Behavioral/Social Science for core)
- COM 25000 - Mass Communication And Society

- COM 25100 - Communication, Information, And Society (satisfies Science, Technology and Society for core)
- COM 31200 - Rhetoric In The Western World
- COM 31400 - Advanced Presentational Speaking
- COM 31800 - Principles Of Persuasion
- COM 32000 - Small Group Communication
- COM 32900 - History Of The Mass Media
- COM 35100 - Mass Communication Ethics
- DANC 25000 - Dance Appreciation (satisfies Human Cultures Humanities for core)
- ECON 21000 - Principles Of Economics
- ECON 25100 - Microeconomics (satisfies Behavioral/Social Science for core)
- ECON 25200 - Macroeconomics (satisfies Behavioral/Social Science for core)
- EDPS 23500 - Learning And Motivation (satisfies Behavioral/Social Science for core)
- ENGL 20200 - Engaging English
- ENGL 21700 - Figures Of Myth And Legend I: Monsters
- ENGL 21800 - Figures Of Myth And Legends II: Heroes And Villains
- ENGL 21900 - Figures Of Myth And Legend III: Magic And Marvels
- ENGL 22300 - Literature And Technology
- ENGL 22400 - Literature, Money, And Markets
- ENGL 22500 - Literature, Inequality, And Injustice
- ENGL 22600 - Narrative Medicine
- ENGL 22800 - Language And Social Identity
- ENGL 23000 - Great Narrative Works (satisfies Human Cultures Humanities for core)
- ENGL 23200 - Thematic Studies In Literature - (Arab Women Writers, Arab-American Literature, Arabic Culture, Arabic Lit in Translation, Arthurian Literature: Medieval to Mod, Contemporary Foreign Women Writers, Dragons, German Folk & Fairy Tales, Intro to Islamic Civ & Cul, Italian Women Writers in Translation, Math, Science, & Literature, Nature in German Literature, Pirates!, Span Am Lit in Trans, The Novels of Stephen King, Tolkein, Vikings!, Women Writers in Translation, Interpreting the Play Script, Sports & Literature, Russian Fairy Tales)
- ENGL 23400 - Ecological Literature
- ENGL 23500 - Introduction To Drama
- ENGL 23700 - Introduction To Poetry
- ENGL 23800 - Introduction To Fiction (satisfies Human Cultures Humanities for core)
- ENGL 24000 - British Literature Before 1789
- ENGL 24100 - British Literature After 1789
- ENGL 24900 - Great British Books
- ENGL 25000 - Great American Books (satisfies Human Cultures Humanities for core)
- ENGL 25700 - Literature Of Black America
- ENGL 25800 - Nobel Prize Winners In Literature
- ENGL 26200 - Greek And Roman Classics In Translation
- ENGL 26400 - The Bible As Literature
- ENGL 26600 - World Literature: From The Beginnings To 1700 A.D.
- ENGL 26700 - World Literature: From 1700 A.D. To The Present
- ENGL 27600 - Shakespeare On Film (satisfies Human Cultures Humanities for core)
- ENGL 27900 - The American Short Story In Print And Film
- ENGL 28000 - Games, Narrative, Culture
- ENGL 28600 - The Movies (satisfies Human Cultures Humanities for core)
- ENGL 32200 - Word, Image, Media

- ENGL 33000 - Games And Diversity
- ENGL 33100 - Medieval English Literature
- ENGL 33300 - Renaissance English Literature
- ENGL 33500 - Restoration And Eighteenth-Century English Literature
- ENGL 33700 - Nineteenth-Century English Literature
- ENGL 33900 - Twentieth-Century British Literature
- ENGL 34100 - Topics In Science, Literature, And Culture - (Exploring Nature, Genetic Engineering & Literature, Human Env & End of Nature, Lit & Scientific Paradigm - Honors, Literature, Nature and Travel, Oil & Water: Science, Literature, Disaster, Science Literature & Climate Change - Honors, The Invention of Nature)
- ENGL 34200 - Legal Fictions
- ENGL 34300 - Labor And Literature
- ENGL 34400 - Environmental Ethics, Policy, And Sustainability
- ENGL 34500 - Games And World Building
- ENGL 35000 - American Literature Before 1865
- ENGL 35100 - American Literature After 1865
- ENGL 35200 - Native American Literature
- ENGL 35400 - Asian American Literature
- ENGL 35800 - Black Drama
- ENGL 35900 - Black Women Writers
- ENGL 36000 - Gender And Literature
- ENGL 36500 - Literature And Imperialism
- ENGL 36600 - Postcolonial Literatures
- ENGL 36700 - Mystery And Detective Fiction
- ENGL 37000 - Nineteenth-Century American Literature
- ENGL 37100 - Twentieth-Century American Literature
- ENGL 37300 - Science Fiction And Fantasy
- ENGL 37700 - Modern And Contemporary Poetry
- ENGL 37900 - The Short Story
- ENGL 38100 - The British Novel
- ENGL 38200 - The American Novel
- ENGL 38600 - History Of Film To 1950
- ENGL 38700 - History Of Film Since 1950
- ENGL 38900 - Literature For Children
- ENGL 39200 - Young Adult Literature
- ENGL 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- ENGL 39600 - Studies In Literature And Language - (African-American Protest Lit, Bad Film, Film Noir, Games, Narrative, & Culture, Latina/o Literature, Latina/o of the US, Living History, Maghrebi Literature & Culture, Spirit of Italian Comedy, Theories of Global Studies, Intro to Disability Studies, Games & Narrative, Games & World Building, Women & Games: Design Dev & Play)
- ENGL 41100 - Studies In Major Authors - (Hurston, Herman Melville, Jane Austen, Mark Twain, Octavia Butler, Tolkein, Toni Morrison, Virginia Woolf, W.E.B. Du Bois, William Faulkner, Zora Neale Hurston, Chaucer)
- ENGL 41200 - Studies In Genre - (Literary Modernism, American Women Poets, Black Satire and Humor, Black Speculative Fiction, The Literary Gothic, The Modern Novel, Twenty-First Century Novel, Twenty First Century Fiction)
- ENGL 41300 - Studies In Literature And History - (Florence & the Renaissance, Beowulf to Shakespeare, Children's Literature in Historical Perspective, Harlem Renaissance, History of the Book, Renaissance Mind:

- Florence 1250-1550, Studies in African Diaspora, Tudors in Literature & Film, Vikings and Literature, Tudors Queens in Lit & Film, Early American Networks)
- ENGL 41400 - Studies In Literature And Culture - (New England Literary Journeys, 19th Century New England Literary Journey, Ecocriticism, Science, and Lit, Environment Studies, Climate Change & Film, Literature and Disability, Literature and Disability: Deaf & Blind Culture, Postmodern Lit & Culture, The Black Male Image, The Hum & Higher Ed - Honors, The Nature of Nature, War, Terrorism, Globalization, and the Role of Literature, Witchcraft and Wonder in Early American Literature, Word, Image, Media)
 - ENGL 43900 - Topics In Disability Studies
 - ENGL 44100 - Chaucer's Canterbury Tales
 - ENGL 44200 - Shakespeare
 - ENGL 44400 - Milton
 - ENGL 46000 - Studies In Women's Literature - (Modernist Women Writers, Studies in Women's Literature)
 - ENGL 46200 - The Bible As Literature: The Old Testament
 - ENGL 46300 - The Bible As Literature: The New Testament
 - ENGL 46600 - Cultural Encounters
 - ENGL 52800 - Medieval English Literature
 - ENGL 53100 - The Rise Of The Novel
 - ENGL 53200 - The English Novel In The Nineteenth Century
 - ENGL 53400 - Seventeenth-Century Literature
 - ENGL 53500 - Restoration And Early Eighteenth-Century Literature
 - ENGL 53800 - English Drama From The Restoration To The Modern Period
 - ENGL 54100 - Studies In Chaucer's Canterbury Tales
 - ENGL 54300 - Shakespeare In Critical Perspective
 - ENGL 54400 - Milton
 - ENGL 54700 - British Romanticism
 - ENGL 54800 - Victorian Literature
 - ENGL 55200 - Studies In Major American Authors
 - ENGL 55300 - Colonial And Early American Literature
 - ENGL 55400 - American Literary Culture 1820-1860
 - ENGL 55700 - Nineteenth-Century African-American Narrative
 - ENGL 55800 - American Literature In The Later Nineteenth Century
 - ENGL 56000 - Modern American Poetry
 - ENGL 57300 - Tragedy
 - ENGL 57900 - Modern British Fiction
 - ENGL 58300 - U S Ethnic/Multicultural Literature
 - ENGL 59200 - Postcolonial Studies - (Postcol & Globalization Studies, Postcolonial Lit of the City, Postcolonial Studies)
 - ENGL 59300 - Contemporary British Fiction
 - ENGL 59400 - Contemporary Poetry
 - ENGL 59500 - Contemporary American Fiction
 - ENGL 59600 - Advanced Studies In Literature Or Language - (Bad Film, Environmental Ethics, Games & UX, Games, Narrative, & Culture, History of Alt Film Making, Modern Arab Thought, Mod Euro Rhetoric, Poetics, Narrative, Postculturalism, Stephen King's Short Stories, The Continental Novel, Women&Games: Design Dev & Play, Young Adult Literature, Tragedy & Phil, Writing the Divine, Magic & Realism)
 - ENGL 59700 - Contemporary Black Feminist Literature
 - ENTR 20000 - Introduction To Entrepreneurship And Innovation
 - ENTR 31000 - Marketing And Management For New Ventures

- ENTR 47000 - Women And Leadership

Approved Courses by Subject: Forestry Natural Resources - Latin American and Latino Studies

- FNR 48800 - Global Environmental Issues
- FR 24100 - Introduction To The Study Of French Literature
- FR 33000 - French Cinema (satisfies Human Cultures Humanities for core)
- FR 34100 - French Literature I: From The Middle Ages To The Enlightenment
- FR 34200 - French Literature II: The 19th And 20th Centuries
- FR 38000 - Special Topics In French Culture And Civilization - (French Food Culture, Special Topics in French Culture and Civilization: La Gastronomie)
- FR 39400 - Special Topics In French Literature - (French Caribbean Literatures, Out of Africa)
- FR 44300 - Introduction To Francophone Literature
- FR 48000 - French Civilization
- FR 54100 - Renaissance French Literature
- FR 54900 - French Literature And Film
- FR 55800 - French Novel Of The Twentieth Century
- FR 58100 - French Culture
- FR 58200 - Francophone Cultures
- FR 59400 - Special Topics In French Literature - (Conte Francais, Introduction to Francophone Literature, Litterature Quebequoise, The Continental Novel, Contemporary Fiction)
- FS 47000 - Wine Appreciation
- FVS 49100 - Special Topics In Film/Video Studies - (Films of Martin Scorsese, Jewish Cinema, Mafia and The Movies, Terrorism & The Movies)
- GER 23000 - German Literature In Translation - (German Fairy Tales, German Folk & Fairy Tales, Myth, Legend, & Folklore, Myths & Legends: Elves to Elvis, Nature and the Environment in German Literature and Thought, Nature in German Literature, Supernatural & Uncanny Ger Lit, Vikings, Monsters, Grimm & God)(select courses satisfy Human Cultures Humanities for core)
- GER 24100 - Introduction To The Study Of German Literature
- GER 28000 - German Special Topics - (Beer and Brewing in German Culture)
- GER 33000 - German Cinema (satisfies Human Cultures Humanities for core)
- GER 34100 - German Literature I: From The Middle Ages To The 18th Century
- GER 34200 - German Literature II: From The 18th Century To The 21st Century
- GER 48000 - German Civilization
- GER 54400 - German Romanticism
- GER 54500 - German Prose From Naturalism To The Present
- GER 55100 - Lyric Poetry From Romanticism To The Present
- GER 55400 - German Drama Before Naturalism
- GER 55500 - German Drama From Naturalism To The Present
- GER 58100 - German Culture
- GER 59400 - Special Topics In German Literature - (Nietzsche: Literature & Values, Orientalism in German Literature, The Continental Novel)
- HEBR 28400 - Ancient Near Eastern History And Culture
- HEBR 38000 - Israel And The Modern World: Cinema, Literature, History And Politics
- HDFS 21000 - Introduction To Human Development
- HIST 10300 - Introduction To The Medieval World (satisfies Human Cultures Humanities for core)
- HIST 10400 - Introduction To The Modern World (satisfies Human Cultures Humanities for core)

- HIST 10500 - Survey Of Global History (satisfies Human Cultures Humanities for core)
- HIST 15100 - American History To 1877 (satisfies Human Cultures Humanities for core)
- HIST 15200 - United States Since 1877 (satisfies Human Cultures Humanities for core)
- HIST 20100 - Special Topics In History - (Ancient Judaism & Early Christianity, Ancient Near Eastern History & Culture, History of Globalization, History of the Military Art)
- HIST 21000 - The Making Of Modern Africa (satisfies Human Cultures Humanities for core)
- HIST 21100 - The Global Field: World Soccer And Global History
- HIST 22800 - English History To 1688
- HIST 23800 - History Of Russia From Medieval Times To 1861 (satisfies Human Cultures Humanities for core)
- HIST 23005 - Hitler's Europe
- HIST 23900 - History Of Russia From 1861 To The Present
- HIST 24000 - East Asia And Its Historic Tradition (satisfies Human Cultures Humanities for core)
- HIST 24100 - East Asia In The Modern World (satisfies Human Cultures Humanities for core)
- HIST 24300 - South Asian History And Civilizations (satisfies Human Cultures Humanities for core)
- HIST 24500 - Introduction To The Middle East History And Culture (satisfies Human Cultures Humanities for core)
- HIST 24600 - Modern Middle East And North Africa (satisfies Human Cultures Humanities for core)
- HIST 25000 - United States Relations With The Middle East And North Africa (satisfies Human Cultures Humanities for core)
- HIST 27100 - Introduction To Colonial Latin American History (1492-1810) (satisfies Human Cultures Humanities for core)
- HIST 27200 - Introduction To Modern Latin American History (1810 To The Present) (satisfies Human Cultures Humanities for core)
- HIST 30000 - Eve Of Destruction: Global Crises And World Organization In The 20th Century
- HIST 30200 - Historical Topics - (African American Women's Intellectual Tradition, Amer & Territorial Empire, America 1914-1945, America in the 1970's, American Economic History, Ancient Judaism & Early Christianity, Arab-Israeli Conflict, Boxing in Culture, Conquistadors in Red, White, and Black, Controversies Contemp Korea, Creoles, Vampires, Quadroon Balls, Cultures of Beauty, Death, Disease & Medicine in 20th Century American History, Democracy and Education, Digital History, Flight Paths-Honors, Gender & Medieval Religion, Gender and War in the Time of , apoleon - Honors, Hamilton the Musical, History of Alchemy, History of Sports in America, History of U.S. Agriculture, History of US Presidential Debate, Hitler and Nazis, Imperial Spain 1469-1714, Introduction to Jewish Studies, Kennedy Assassination in Global Perspective, Korean History, Present-1945, Modern Warfare, Muslim Women in History, Nationalism and Socialism, Queens & Empresses, Race and Boxing, Religion in American History & Culture, Religion in American Society & Politics 1607-1877, Revolutions in the Atlantic World, ROMA History, Music & Culture, Sex, Race, and Science, Shakespeare's Kings: The History Plays, Sports in America, Technology, Innovation, and the US Civil War, The Bible & its Early Interpreters, The Traveler's Gaze, The US In The World, Warfare & Diplomacy, Youth in Revolutionary China, Black Pop Culture & Civil Rights, WWI and the Middle East, Afro-American Athletes & Race, Hitler's Europe, Muslim Americans, Witchcraft & Magic in History, Brewing & The American Expr, Early Modern Madness, History of Ireland: 1556-1921, Modern Korean History, American Colonies, Global 1960s Revolution)
- HIST 30305 - Food In Modern America
- HIST 30400 - America In The 1960s (satisfies Human Cultures Humanities for core)
- HIST 30505 - The United States In The World 1898-Present (satisfies Human Cultures Humanities for core)
- HIST 30605 - Technology And War In U.S. History
- HIST 31005 - The Civil War And Reconstruction, 1850 To 1877
- HIST 31305 - Medical Devices And Innovation
- HIST 31405 - Science, Technology, Engineering And Mathematics (STEM) And Gender

- HIST 31505 - American Beauty
- HIST 31700 - A History Of The Christian Church And The Expansion Of Christianity I
- HIST 31800 - A History Of The Christian Church And The Expansion Of Christianity II
- HIST 31905 - Christianity In The Global Age
- HIST 32000 - The World Of Charlemagne
- HIST 32105 - Spain: The First Global Empire, 1469-1713
- HIST 32200 - Monarchy: Its Rise And Fall
- HIST 32300 - German History (satisfies Human Cultures Humanities for core)
- HIST 32400 - Modern France (satisfies Human Cultures Humanities for core)
- HIST 32501 - Twentieth Century Europe Through Autobiography
- HIST 32600 - Popular Culture In Preindustrial Europe (1400-1800)
- HIST 32900 - History Of Women In Modern Europe
- HIST 33000 - History Of The British Empire And Commonwealth, 1783 To 1960
- HIST 33100 - Great Figures In History
- HIST 33205 - The Nuclear Age
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33505 - Nationalism And Socialism In East Central Europe
- HIST 33700 - Europe In The Age Of The Cold War
- HIST 33805 - History Of Human Rights
- HIST 33900 - Traditional China
- HIST 34000 - Modern China (satisfies Human Cultures Humanities for core)
- HIST 34300 - Traditional Japan
- HIST 34400 - History Of Modern Japan (satisfies Human Cultures Humanities for core)
- HIST 34705 - History Of Religion In America
- HIST 34901 - The First World War
- HIST 35000 - Science And Society In The Twentieth Century World
- HIST 35100 - The Second World War (satisfies Human Cultures Humanities for core)
- HIST 35205 - Death, Disease And Medicine In Twentieth Century American History
- HIST 35400 - Women In America To 1870 (satisfies Human Cultures Humanities for core)
- HIST 35500 - History Of American Military Affairs
- HIST 35600 - America In Vietnam
- HIST 35700 - History Of Southern Africa Since 1400
- HIST 35900 - Gender In East Asian History (satisfies Human Cultures Humanities for core)
- HIST 36101 - Violence, War, And Militarism In Modern Africa
- HIST 36305 - The History Of Medicine And Public Health
- HIST 36600 - Hispanic Heritage Of The United States
- HIST 37005 - Queens And Empresses In Early Modern Europe
- HIST 37100 - Society, Culture, And Rock And Roll (satisfies Human Cultures Humanities for core)
- HIST 37200 - History Of The American West
- HIST 37500 - Women In America Since 1870 (satisfies Human Cultures Humanities for core)
- HIST 37600 - History Of Indiana
- HIST 37700 - History And Culture Of Native America
- HIST 38001 - History Of United States Agriculture (satisfies Human Cultures Humanities for core)
(satisfies Science, Technology and Society for core)
- HIST 38200 - American Constitutional History (satisfies Human Cultures Humanities for core)
- HIST 38300 - Recent American Constitutional History (satisfies Human Cultures Humanities for core)
- HIST 38400 - History Of Aviation
- HIST 38505 - Media, Politics And Popular Culture

- HIST 38700 - History Of The Space Age
- HIST 39200 - Caribbean History And Culture
- HIST 39400 - Environmental History Of The United States (satisfies Human Cultures Humanities for core)
- HIST 39500 - Junior Research Seminar - (1960s America, Air & Space: The Technology & Culture of Flight, Children's Literature, Conspiracy & Conspiracy Theory, Cultural Studies Children's Literature, Discover Your Roots, Gender and Politics, Gender & War in Modern Europe, German-Occupied Europe, Global History of Oceans, Hist of Medicine in Archives, History & Memory, History as Conspiracy, History of Human Rights, History of Race and Law, Indian Crossroads-Colonial City, Magic, Science, Faith, Medicine & Public Health in US, Misfits Castoffs Colonial Amer, Occupied Europe, Politics and Culture in Cold War America: The 1950s, Politics Mod Latin America, Politics of Popular Culture 20th Century U.S., Pop Culture Goes to War, Race And The Law In The U S, Sovereign Nations of Southwest, The Civil Rights Movement, The Gender Revolution in Modern America, The Global Cold War, The Politics of Popular Culture in 20th Century US, Witches, Wenches & Pirates, Women's Voices in Early Modern Europe, Writing Global American History, Foods, Fads & Fitness in America, Afro Amer Athl & Civil Rights, Dynasties & Intl Politics, The Moon Race, Roots of the Climate Crisis)
- HIST 39600 - African American History To 1877 (satisfies Human Cultures Humanities for core)
- HIST 39800 - African American History Since 1877 (satisfies Human Cultures Humanities for core)
- HIST 40000 - Great Books And The Search For Meaning
- HIST 40300 - Europe In The Reformation
- HIST 40400 - Kings And Philosophers: Europe 1618-1789
- HIST 40500 - The French Revolution And Napoleon
- HIST 40600 - Rebels And Romantics: Europe 1815-1870
- HIST 40700 - Road To World War I: Europe 1870-1919
- HIST 40800 - Dictatorship And Democracy: Europe 1919-1945
- HIST 41005 - History Of The American Presidency
- HIST 41300 - Modern European Imperialism: Repression and Resistance
- HIST 41505 - Gender And Politics In Early Modern Europe
- HIST 41800 - European Society And Culture 1450-1800
- HIST 42300 - Advanced Topics In Modern Germany - (Divided Germany, German Business History, Germany & France: War, Peace & Memry)
- HIST 43000 - Women In African History
- HIST 43900 - Communist China
- HIST 44100 - Africa In The Twentieth Century
- HIST 46000 - American Colonial History
- HIST 46100 - The Revolutionary Era, 1763 To 1800
- HIST 46700 - The Emergence Of Modern America
- HIST 46800 - Recent American History
- HIST 46900 - Black Civil Rights Movement
- HIST 47005 - Women And Health In America
- HIST 47300 - History Of The South
- HIST 47500 - Spanish Frontier In North America
- HIST 47600 - The Civil War In Myth And Memory
- HIST 47700 - Native American Women's History
- HIST 48005 - Madness And The Asylum In The United States
- HIST 48500 - Topics In American Political History - (History of Pres Comm, The American Presidency, Work & Labor in Modern America)
- HIST 48800 - History Of Sexual Regulation In The United States

- HIST 49200 - Seminar In Historical Topics - (18th-Century Pacific Worlds, Afro American & Amer Labor Movement, Americans in the World, Catholic Priests & Nuns Movies, Gauchos and Cowboys on the Argentine Frontier, Gender, Science & Technology, Great Trials in History, History Of Argentina, History of Argentina 1810-Present, Jefferson to Turner, Late Imperial China, Life & Career of Winston Churchill, Race, Gender, Culture US - Honors, Refuges and Statelessness, Slavery & Freedom in Fact, Fiction, and Film, Southern History at the Movies, Spain Under the Habsburgs, The Confederacy Hist & Myth, US Imperialism, Women and Health in America)
- HIST 49500 - Research Seminar In Historical Topics - (1960s America, American Foreign Relations, American Imperialism, American Missionaries in East Asia, Autobiographies & Memoirs, Chilies to Chocolate: How the Americas Changed the World, Com at the Dawn of the Republic, Flight and Space, Gender Revolution in Modern American, History of Madness and the Asylum, Indian Removal 19th Cent US, Interwar Jewish Experiences in E. Central Europe, Russia, and Middle East, Madness and the Asylum, Modern Civil Rights Movement, Native America and Colonial Settlement, Persistent Myths in Amer Hist, Pol & Popular Music:1945-1969, Politics & Popular Culture of Cold War America-Honors, Rel & Pol In Mid Amer, Sectional Crisis And American Civil War, Seminar on Native America, Spain in American Southwest, The Age of Elvis: America in the 1950's, Trials and History, War and Gender, Witchcraft & Magic, Women Modern America 1950-Pres, Medicine and Madness, Reights & Revolution Eur & America, Race & Civil Rights Movmnt)
- HIST 50000 - Studies In Medieval History
- HIST 50500 - Haunted Pasts: Ghosts, Ghouls And Monsters In Global Culture
- HIST 51200 - England Under The Stuarts
- HIST 51400 - A History Of Western Thought I
- HIST 51500 - A History Of Western Thought II
- HIST 54800 - Conflict In East Asia: Twentieth Century
- HIST 57600 - Problems In Latin American History
- HIST 58600 - United States Foreign Affairs To World War I
- HIST 58700 - United States Foreign Affairs: World War I To Present
- HIST 59300 - Twentieth-Century American Intellectual History
- HIST 59400 - Afro-American Thought And Ideology
- HIST 59500 - The Holocaust And Genocide
- HONR 19900 - Interdisciplinary Honors - Introductory Seminar - (Beyond Afghanistan)
- HONR 29900 - Interdisciplinary Honors - Experiential Learning - (Underground Networks)
- HONR 39900 - Interdisciplinary Honors - Special Topics Seminar Human Redesign Calendar
- IDIS 49100 - Special Topics In Interdisciplinary Studies - (Arab Women Writers, Arabic Culture, British Literature, Cultural Encounters, Cultural Orphans in Latin America, Evolutn of Bible Revol Effcts, Gender & Medieval Religion, Ghosts in Global Culture, Intro to Islamic Civ & Cul, Jewish Cinema, Milton, Muslim Women in History, Muslims in America, Myth, Legend, & Folklore, Myths & Legends: Elves to Elvis, Race & Religion in the US, Religion & Violence, The Icelandic Saga, Two Koreas: Pol Econ Rivalry, Women Writers in Translat)
- IDIS 59100 - Selected Topics In Interdisciplinary Studies - (Seventeenth Century Lit, The Continental Novel)
- ILS 23000 - Data Science And Society: Ethical Legal Social Issues
- ITAL 23100 - Dante's Divine Comedy
- ITAL 28100 - The Italian Renaissance And Its Scientific And Cultural Impact On Western Civilization (satisfies Human Cultures Humanities for core)
- ITAL 33000 - The Italian Cinema (satisfies Human Cultures Humanities for core)
- ITAL 33300 - The Spirit Of Italian Comedy (satisfies Human Cultures Humanities for core)
- ITAL 33500 - Italian-American Cinema
- ITAL 34100 - Italian Literature I: From The Middle Ages To The Enlightenment
- ITAL 34200 - Italian Literature II: From Romanticism To The Present

- ITAL 39300 - Special Topics In Italian Literature Or Cinema - (Italian Fashion: History, Italian Women Writers in Translation, La Dolce Vita: Italian Food, Mafia and The Movies, The Films of Martin Scorsese)
- ITAL 49300 - Advanced Topics In Italian Literature Or Cinema - (Mafia & the Movies)
- JPNS 24100 - Introduction To The Study Of Japanese Literature
- JPNS 28000 - Introduction To Modern Japanese Civilization
- JPNS 33000 - Japanese Cinema
- JPNS 34100 - Japanese Literature I: Modern Japanese Literature
- JPNS 48000 - Japanese Civilization
- JPNS 49000 - Special Topics In Japanese Language - (Contemporary Japanese Popular Literature & Culture, Japanese Culinary Culture, JPNS B Movies Document Films, JPNS Cinema II: Enter & Othr Fm, Modern JPNS Masterpiece Novels)
- JPNS 54300 - Modern Japanese Popular Literature And Culture
- JPNS 59400 - Special Topics In Japanese Literature - (Contemp JPNS Women Writers, Modern Japanese Fiction, The Continental Novel)
- JWST 33000 - Introduction To Jewish Studies (satisfies Human Cultures Humanities for core)
- LALS 25000 - Introduction To Latin American And Latino Studies
- LALS 26000 - U S Latino Culture
- LALS 49500 - Humanigration: A Border Experience

Approved Courses by Subject: Latin - Women Gender and Sexuality Studies

- LATN 34300 - Roman Oratory
- LATN 34400 - Roman Epic
- LATN 34500 - Roman Elegy
- LATN 34700 - Roman Comedy
- LATN 44300 - Roman Satire
- LATN 44400 - Roman Philosophers
- LALS 26000 - U S Latino Culture
- LATN 44600 - Roman Historians
- LATN 49000 - Directed Reading In Latin - (Latin Paleography)
- LATN 59000 - Directed Reading In Latin - (Latin Paleography)
- LC 23000 - Crossing Borders: Introduction To Comparative Literature
- LC 23100 - Fairytale, Folktale, Fable
- LC 23300 - Love, Sex, And Gender In Western European Literature
- LC 23500 - East Asian Literature In Translation
- LC 23900 - Women Writers In Translation - (Women Writers in Translation, Contemporary Foreign Women Writers in Translation, French Women Writers in Translation - Honors, Italian Women Writers in Translation) (select courses satisfy Human Cultures Humanities for core)
- LC 33100 - Comparative Literature In Translation - (Kabbalah and Jewish Mysticism, Topics in Brazilian Culture)
- LC 33300 - The Middle Ages On Film (satisfies Human Cultures Humanities for core)
- LC 49000 - Special Topics In Foreign Languages And Literatures - (History of Chinese Art, Jewish Cinema, Leo Tolstoy His World and Art, Terrorism & The Movies)
- LC 59300 - Special Topics In Literature - (Dostoevsky and His Age, Leo Tolstoy His World and Art, Mod Europ Narrativ Theory Pract, Modern Arab Thought, ModEuroRhetorc,Poetcs,Narrativ, Nietzsche: Literature & Values, Stephen King's Short Stories, The Continental Novel, The Icelandic Saga, Theory of Creativity)

- MARS 22000 - Introduction To Medieval And Renaissance Studies - (Dragons, Arthurian Literature: Medieval to Modern, Love, Sex, and Gender in Western European Literature, Middle Ages on Film, Pirates!, The Tudors, Vikings!)
- MARS 42000 - Medieval And Renaissance Studies Seminar - (Beowulf to Shakespeare, Chaucer's Troilus, Renaissance Mind: Florence 1300-1600, The Bible as Literature: The New Testament, Tudors in Literature and Film)
- MGMT 20000 - Introductory Accounting
- MGMT 21200 - Business Accounting
- MGMT 24200 - Contemporary Problems In Personal Finance For Minorities
- MGMT 24300 - Contemporary Thought Of Minorities In Management
- MGMT 32300 - Principles Of Marketing
- MGMT 32400 - Marketing Management
- MGMT 45500 - Legal Background For Business I
- MUS 25000 - Music Appreciation (satisfies Human Cultures Humanities for core)
- MUS 36100 - Music Theory I (satisfies Human Cultures Humanities for core)
- MUS 36200 - Music Theory II
- MUS 36300 - Music Theory III
- MUS 37500 - Selected Topics In Music - (Beethoven, Brahms, Celebratory Baroque Music, Mozart, The Music of Handel)
- MUS 37600 - World Music
- MUS 37800 - Jazz History (satisfies Human Cultures Humanities for core)
- MUS 38100 - Music History I: Antiquity To Mozart
- MUS 38200 - Music History II: Beethoven To The Present
- OBHR 33000 - Introduction To Organizational Behavior
- PHIL 11000 - The Big Questions: Introduction To Philosophy (satisfies Human Cultures Humanities for core)
- PHIL 11100 - Introduction To Ethics (satisfies Human Cultures Humanities for core)
- PHIL 11400 - Global Moral Issues (satisfies Human Cultures Humanities for core)
- PHIL 12000 - Critical Thinking (satisfies Human Cultures Humanities for core)
- PHIL 20600 - Introduction To Philosophy Of Religion
- PHIL 20700 - Ethics For Technology, Engineering, And Design
- PHIL 21900 - Philosophy And The Meaning Of Life
- PHIL 22100 - Introduction To Philosophy Of Science
- PHIL 22300 - Fate And Free Will
- PHIL 22500 - Philosophy And Gender
- PHIL 23000 - Religions Of The East (satisfies Human Cultures Humanities for core) - (Global Ethics, Philosophy of Disability, Science and Religion)
- PHIL 23100 - Religions Of The West (satisfies Human Cultures Humanities for core)
- PHIL 24000 - Social And Political Philosophy
- PHIL 24200 - Philosophy, Culture, And The African American Experience
- PHIL 26000 - Philosophy And Law (satisfies Information Literacy for core)(satisfies Written Communication for core)
- PHIL 27000 - Biomedical Ethics (satisfies Science, Technology and Society for core)
- PHIL 27500 - The Philosophy Of Art
- PHIL 28000 - Ethics And Animals (satisfies Human Cultures Humanities for core)
- PHIL 29000 - Environmental Ethics (satisfies Human Cultures Humanities for core)
- PHIL 29300 - Selected Topics In Philosophy
- PHIL 30100 - History Of Ancient Philosophy

- PHIL 30200 - History Of Medieval Philosophy
- PHIL 30300 - History Of Modern Philosophy
- PHIL 30400 - Nineteenth-Century Philosophy
- PHIL 30600 - Twentieth-Century Philosophy
- PHIL 32200 - Philosophy Of Technology
- PHIL 40200 - Studies In Medieval Christian Thought
- PHIL 40600 - Intermediate Philosophy Of Religion
- PHIL 41100 - Modern Ethical Theories
- PHIL 42100 - Philosophy Of Science
- PHIL 42400 - Recent Ethical Theory
- PHIL 42500 - Metaphysics
- PHIL 43200 - Theory Of Knowledge
- PHIL 43500 - Philosophy Of Mind
- PHIL 46500 - Philosophy Of Language
- PHIL 49000 - Advanced Topics In Philosophy - (Early Greek Philosophy, Ethics and Philosophy of Info, Minds and Morals, Personal Identity, Moral Psych & Environment, Philosophy of Race)
- PHIL 50100 - Studies In Greek Philosophy
- PHIL 50200 - Studies In Medieval Philosophy
- PHIL 50300 - Studies In Early Modern Philosophy
- PHIL 50500 - Islamic And Jewish Philosophy And The Classical Tradition
- PHIL 50600 - Advanced Philosophy Of Religion
- PHIL 50700 - Recent American Philosophy
- PHIL 51000 - Phenomenology
- PHIL 51400 - Twentieth-Century Analytical Philosophy I
- PHIL 51500 - Twentieth-Century Analytical Philosophy II
- PHIL 52000 - Existentialism
- PHIL 52400 - Contemporary Ethical Theory
- PHIL 52500 - Studies In Metaphysics
- PHIL 53000 - Deconstructionist And Postmodernist Philosophy
- PHIL 53200 - Studies In Theory Of Knowledge
- PHIL 53500 - Studies In Philosophy Of Mind
- PHIL 54000 - Studies In Social And Political Philosophy
- PHIL 54500 - Recent Analytic Philosophy
- PHIL 55100 - Philosophy Of The Natural Sciences
- PHIL 55200 - Philosophy Of The Social Sciences
- PHIL 55500 - Critical Theory
- PHIL 58000 - Proseminar In Philosophy - (Metalogic, Philosophy of Liberation, Proseminar in Philosophy, Laws/Causes)
- PPHR 49000 - Special Topics - (Traditnl Chns Med In Shanghai)
- POL 10100 - American Government And Politics (satisfies Behavioral/Social Science for core)
- POL 12000 - Introduction To Public Policy And Public Administration (satisfies Behavioral/Social Science for core)
- POL 13000 - Introduction To International Relations (satisfies Behavioral/Social Science for core)
- POL 14100 - Governments Of The World
- POL 15000 - Introduction To Political Thought
- POL 20000 - Introduction To The Study Of Political Science
- POL 22200 - Women, Politics, And Public Policy (satisfies Behavioral/Social Science for core)

- POL 22300 - Introduction To Environmental Policy (satisfies Behavioral/Social Science for core) (satisfies Science, Technology and Society for core)
- POL 22900 - Emerging Problems In Political Science - (Global Habitats, Cmnty Dev & Sust, Terrorism, The US, Cuba & Latin America, Social and Political Philosophy, State Borders and Disputes, Data Science and Public Policy)
- POL 23000 - Introduction To The Study Of Peace (satisfies Behavioral/Social Science for core)
- POL 23100 - Introduction To United States Foreign Policy (satisfies Behavioral/Social Science for core)
- POL 23500 - International Relations Among Rich And Poor Nations (satisfies Behavioral/Social Science for core)
- POL 23700 - Modern Weapons And International Relations (satisfies Science, Technology and Society for core)
- POL 30000 - Introduction To Political Analysis (satisfies Information Literacy for core)
- POL 31400 - The President And Policy Process
- POL 32300 - Comparative Environmental Policy
- POL 32600 - Black Political Participation In America
- POL 32700 - Global Green Politics
- POL 33500 - China And The Challenges Of Globalization
- POL 34500 - West European Democracies In The Post-Industrial Era
- POL 34700 - Introduction To Latin American Politics
- POL 34800 - East Asian Politics
- POL 35100 - Foundations Of Western Political Theory: From Plato To The Reformation
- POL 35300 - Current Political Ideologies
- POL 36000 - Women And The Law
- POL 37200 - Indiana Government And Politics
- POL 37300 - Campaigns And Elections
- POL 41000 - Political Parties And Politics
- POL 41100 - Congress: Structure And Functioning
- POL 41300 - The Human Basis Of Politics
- POL 41500 - US Politics And The Media
- POL 42300 - International Environmental Policy
- POL 42500 - Environmental Law And Politics
- POL 42800 - The Politics Of Regulation
- POL 42900 - Contemporary Political Problems - (Am Political Communication, Am Presidents & Com With Cspan, Bioethics, Building Democratic Institution, Community Resilience, CSPAN:Com Democracy Thru Media, Digital Democracy, Food Policy-Honors, Health, Sustainability, & the Built Environment, Issues/Interviews w/Brian Lamb, It's a Complex World, Media Influe Conflit Envir, Model United Nations, Political Communication, Politics and Media, Politics Media & Pres Elect, Public Opinion & Elections, Public Opinion Polling, Science Technology and Policy, Supreme Ct & Const Law, The Politics of NASCAR Nation, Contemporary Political Problems, Intro to Nuc & Rad Security, Understand Fed Sci Pol & F)
- POL 43000 - Selected Problems In International Relations - (Bargaining & Diplomacy, Causes & Consequences of War, International Human Rights, IR: The Iraq Wars, Selected Problems in International Relations, Theories of IR, War, Public Opinion, and US Foreign Policy, Spies & Lies Studies Intel & Secur, Nation-building and War)
- POL 43200 - Selected Problems In World Order - (Selected Problems in World Order: Human Transformations)
- POL 43300 - International Organization
- POL 43500 - International Law
- POL 46000 - Judicial Politics
- POL 46100 - Constitutional Law I

- POL 46200 - Constitutional Law II
- POL 49100 - Political Science Senior Seminar - (American Race Relations, Contemporary Political Problems, Contemporary Power Relations, Democracy & Democratization, Democracy & Its Critics, Environmental Federalism, Hard Decisions, Health Care Policy and Politics, International Cooperation, Moving Across Borders, NIMBY Politics, Parliamnts Promote Demcrncy?, Power and Interest, Power, Bargaining, & Conflict, Public Opinion & Elections, Public Policy: Race, Class, Gender, Race, Class and Political Representation, Race, Gender & Political Representation, Southern Politics, SrSemr Congress Age of TV, SrSemr Conservatism, SrSemr Demcrncy & Critics, Terrorism And Media, The Iraq Wars, Comp Pol of Renewable Energy, Powers & International Order, Senior Seminar Env Policy, Politics of Japan and China)
- POL 49300 - Interdisciplinary Undergraduate Seminar - (Data Driven Apprch/Polcy Mking, Introduction to Jewish Studies, Seminar in Global Policy Issues)
- POL 51700 - The Politics Of Capital And Labor In The United States
- POL 52000 - Special Topics In Public Policy - (Policy Analysis Climate Change, Gender, Race, and Class: Public Policy, Health, Built Env & Sustain, Race Ethnicity Representation, World Food Problems, Nuclear Strategy/Proliferation)
- POL 52300 - Environmental Politics And Public Policy
- POL 52400 - Public Policy And The Family
- POL 59000 - Directed Reading In Political Science
- PSY 12000 - Elementary Psychology
- PSY 20000 - Introduction To Cognitive Psychology
- PSY 22200 - Introduction To Behavioral Neuroscience
- PSY 23500 - Child Psychology
- PSY 23900 - The Psychology Of Women
- PSY 24000 - Introduction To Social Psychology
- PSY 24400 - Introduction To Human Sexuality
- PSY 27200 - Introduction To Industrial-Organizational Psychology
- PSY 29200 - Topics In Psychology - (Intro to Clinical Psych, Intro to Neuropsychology, Neurobiology of Disease)
- PSY 31000 - Sensory And Perceptual Processes
- PSY 31100 - Human Memory
- PSY 31400 - Introduction To Learning
- PSY 32400 - Introduction Cognitive Neuroscience
- PSY 33500 - Stereotyping And Prejudice
- PSY 33600 - Issues In Developmental Psychology
- PSY 33700 - Social Cognition
- PSY 34200 - Introduction To Psychology Of Personality
- PSY 35000 - Abnormal Psychology
- PSY 35400 - Close Relationships
- PSY 36100 - Human Development I: Infancy And Childhood
- PSY 36700 - Adult Development And Aging
- PSY 38000 - Behavior Change Methods
- PSY 39200 - Special Topics In Psychology - (Attention & Cognitive Control, Close Relationships, Foods and Behavior, Intro to Clinical Psychology, Language & The Brain, Neurobiology of Disease, Neurodevelopmental Disorders, Neuroscience, Alcohol Abuse & Alcoholism, Parapsyc & Psychic Claims, Psychology of Emotions, Psychology of Helping, Research Ethics in Psychology, Robot & Human Vision, Science of Happiness, Social Cognition, Social Image And Self-Identity, Social Psychology & Film, Social Psychology of Film-Honors, Understanding Autism, Diversity and Inclusion)
- PSY 41800 - Understanding Autism
- PSY 42100 - Alcohol Use And Disorders

- PSY 42200 - Genes and Behavior
- PSY 42800 - Drugs And Behavior
- PSY 42900 - Hormones And Behavior
- PSY 44300 - Aggression And Violence
- PSY 46400 - Research Ethics In Psychological Sciences
- PSY 47300 - Selection And Performance Appraisal In Organizations
- PSY 47500 - Work Motivation And Job Satisfaction
- PSY 48400 - The Psychology Of Consciousness
- PSY 54000 - History Of Psychology
- PSY 56100 - Personality And Social Functioning In Older Adults
- PSY 59100 - Topics In Psychology - (Cross Cultural Social Psy, Current Readings in Social Psychology, Developmental Cognitive Neuroscience, Ethnic Minority Issues in Psy, Evolutionary Cognitive Psychology, Hormones & Behavior, Intro to Compu/Cog Neurosci, Neuroethics, Neuroscience of Consciousness, Acceptance and Inclusion, Foundations of Clinical Psych)
- PTGS 33000 - Brazilian, Portuguese, And African Cinema
- PTGS 55100 - Brazilian Poetry
- PTGS 55500 - Brazilian Drama
- PTGS 55700 - Brazilian Fiction
- PTGS 59400 - Special Topics In Luso-Brazilian Literature - (Latin American Short Story, Clarice Lispector, Luso-Brazilian Literature, Machado De Assis, Machado & Burges)
- REL 20000 - Introduction To The Study Of Religion (satisfies Human Cultures Humanities for core)
- REL 20100 - Interpretation Of The New Testament
- REL 20200 - Interpretation Of The Old Testament
- REL 20300 - Theology Of Paul
- REL 20400 - Introduction To Christian Theology
- REL 23000 - Religions Of The East (satisfies Human Cultures Humanities for core)
- REL 23100 - Religions Of The West (satisfies Human Cultures Humanities for core)
- REL 25000 - A History Of The Christian Afterlife
- REL 31700 - Ancient Judaism And Early Christianity
- REL 31800 - The Bible And Its Early Interpreters
- REL 35000 - History Of Christian Theology
- REL 35100 - Christian Mysticism
- REL 45000 - Christian Ethics
- REL 45100 - Christology
- REL 45200 - Systematic Theology
- RUSS 29800 - Special Topics In Russian Russian Fairy Tales
- RUSS 33000 - Russian And East European Cinema (satisfies Human Cultures Humanities for core)
- RUSS 34100 - Russian Literature In The Nineteenth Century
- RUSS 34200 - Revolution, Repression, Renewal: Soviet Literature And Beyond
- RUSS 38000 - Russian Culture And Civilization I
- RUSS 48000 - Russian Civilization
- RUSS 58100 - Russian Culture
- SOC 10000 - Introductory Sociology (satisfies Behavioral/Social Science for core)
- SOC 22000 - Social Problems (satisfies Behavioral/Social Science for core)
- SOC 27500 - Sociology Of Aging And The Life Course
- SOC 31000 - Race And Ethnicity
- SOC 31200 - American Society
- SOC 32400 - Criminology

- SOC 32600 - Social Conflict And Criminal Justice
- SOC 32700 - Crime, Deviance And Mass Media
- SOC 32800 - Criminal Justice
- SOC 33400 - Urban Sociology
- SOC 33800 - Global Social Movements
- SOC 33900 - Introduction To The Sociology Of Developing Nations
- SOC 34000 - General Social Psychology
- SOC 35000 - Sociology Of Family
- SOC 35200 - Drugs, Culture, And Society
- SOC 35600 - Hate And Violence
- SOC 36700 - Religion In America
- SOC 36800 - The Social Significance Of Religion
- SOC 36900 - Religion And Chinese Society
- SOC 37400 - Medical Sociology
- SOC 39100 - Selected Topics In Sociology - (Sociology of Mental Health)
- SOC 40200 - Sociological Theory
- SOC 41100 - Social Inequality
- SOC 41900 - Sociology Of Law
- SOC 42100 - Juvenile Delinquency
- SOC 42600 - Social Deviance And Control
- SOC 42900 - Sociology Of Protest
- SOC 45000 - Gender Roles In Modern Society
- SOC 52500 - Social Movements
- SOC 53100 - Community Organization
- SOC 56700 - Religion In Social Context
- SOC 56800 - Religion And Society
- SOC 57000 - Sociology Of Education
- SOC 57100 - Health And Behavior
- SOC 57200 - Comparative Healthcare Systems
- SOC 57300 - The Human Side Of Medicine
- SOC 57400 - The Social Organization Of Healthcare
- SOC 57600 - Health And Aging In Social Context
- SOC 59100 - Selected Topics In Sociology - (Sociology ProSeminar, Social Psychology of Mental Disorders)
- SPAN 23100 - Cervantes' Don Quixote
- SPAN 23500 - Spanish American Literature In Translation - (Food/Culture in Hispanic World, Latin American Short Stories, Spanish American Literature in Translation) (select courses satisfy Human Cultures Humanities for core)
- SPAN 24100 - Introduction To The Study Of Hispanic Literature
- SPAN 28000 - Second-Year Spanish: Special Topics - (Intro Latin Am & Latino Study)
- SPAN 33000 - Spanish And Latin American Cinema (satisfies Human Cultures Humanities for core) (satisfies Written Communication for core)
- SPAN 33500 - The Literature Of The Spanish-Speaking Peoples In The United States
- SPAN 34100 - Hispanic Literature I: Poetry And Drama
- SPAN 34200 - Hispanic Literature II: Prose
- SPAN 48000 - Spanish Civilization
- SPAN 48100 - Spanish Culture
- SPAN 48200 - Latin American Civilization

- SPAN 48300 - Latin American Culture
- SPAN 49800 - Advanced Topics In Spanish - (Chicana/o & Latina/o Lit Trans, Food Culture Hispanic World, Hispanic Film in Spanish)
- SPAN 54000 - Spanish Literature Of The Middle Ages
- SPAN 54100 - Spanish Literature Of The Golden Age
- SPAN 54200 - Cervantes Don Quijote
- SPAN 54300 - Spanish Literature Of The 18th And 19th Centuries
- SPAN 54500 - Spanish Literature Of The 20th Century
- SPAN 55000 - Spanish American Literature Of The Colonial Period
- SPAN 55100 - Spanish American Literature Of The 19th Century
- SPAN 55200 - Spanish American Literature From 1900 To 1970
- SPAN 55300 - Spanish American Literature From 1970- Present
- SPAN 55400 - Hispanic Caribbean Literature
- SPAN 55500 - Latino/a Literature
- SPAN 55600 - Mexican Literature
- SPAN 59400 - Special Topics In Hispanic Literature - (Spanish Literature of the Middle Ages, The Continental Novel, Transatlantic Poetry, Hispanic Film in Span Part II, Modern Spanish Comic Theater)
- THTR 20100 - Theatre Appreciation (satisfies Human Cultures Humanities for core)
- THTR 38000 - History Of Theatre I
- THTR 38100 - History Of Theatre II
- THTR 39000 - Directed Study Of Special Theatre Problems - (Hamilton the Musical)
- WGSS 28000 - Women's, Gender, And Sexuality Studies: An Introduction (satisfies Human Cultures Humanities for core) (satisfies Behavioral/Social Science for core)
- WGSS 28100 - Selected Topics In Women's, Gender, And Sexuality Studies - (Arab Women Writers, Contemporary Foreign Women Writers in Translation, Spanish American Literature in Translation, Women Writers in Translation, Women, Gender, and Leadership, 20th Century Women Artists)
- WGSS 28200 - Introduction To LGBT Studies
- WGSS 38000 - Gender And Multiculturalism
- WGSS 38100 - Women Of Color In The United States
- WGSS 38200 - Love, Sex And Sexuality
- WGSS 38300 - Women And Work
- WGSS 39000 - Selected Topics In Women's, Gender And Sexuality Studies - (American Beauty, Gender Revolution in Mod Amer, Gender and Politics in Early Modern Europe, Literature, Queer Studies & Disability, Queens and Empresses in Early Modern Europe, Women & Games: Design Dev & Play, Understanding the NFL, Women and Leadership)
- WGSS 48000 - Feminist Theory
- WGSS 48200 - Interdisciplinary Studies In Sexuality: Scholarship On Lesbian And Gay Issues
- WGSS 48300 - Feminisms In Global Perspective
- WGSS 49900 - Independent Study In Women's, Gender And Sexuality Studies - (Black Women Writers, African American Women and Activism, Black Women, Gender Revolution in Modern America)
- WGSS 59900 - Selected Topics In Women's Gender And Sexuality Studies - (Bad Mothers in American Literature, Gender & Sexuality in Sport, Native American Women Writers)

College of Science Core: Great Issues in Science

Curricular Outcomes: ability to think and function as a scientist and demonstrated breadth of knowledge

This important core requirement challenges College of Science students to apply their critical thinking and analytical abilities gained from engagement in their major area of study to the global conversation regarding the impact of Science on society and the ramifications of scientific advances.

Curricular Notice:

Courses which have been taken to meet the Great Issues requirement may not also be used to meet a student's Culture/Diversity or General Education requirement. Transfer Credit (including AP, IB, and A LEVEL credit) will not meet the Great Issues Requirement.

Great Issues in Science:

All courses must be taken as 3.00 credit hours

- BIOL 31200 - Great Issues Genomics And Society
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- CHM 49000 - Selected Topics In Chemistry For Upper-Division Students Approved Titles for CHM 49000: History & Philosophy of Science: Synergies Among the Physical Sciences The History and Philosophy of Science and the Cognitive Sciences Great Issues in Drug Discovery
- CNIT 49900 - Topics In Computer And Information Technology - (Seminar Global Policy Issues)
- EAPS 30100 - Oil !
- EAPS 32700 - Climate, Science And Society
- EAPS 36000 - Great Issues In Science And Society
- EAPS 36400 - Natural Hazards: Science And Society
- EAPS 37500 - Great Issues - Fossil Fuels, Energy And Society
- HIST 31305 - Medical Devices And Innovation
- HIST 35205 - Death, Disease And Medicine In Twentieth Century American History
- HONR 29900 - Interdisciplinary Honors - Experiential Learning Approved titles for HONR 29900: Rise/Fall Of The American Emp Food Security
- HONR 39900 - Interdisciplinary Honors - Special Topics Seminar Approved Titles for HONR 39900: Human Redesign Biotechnology: Social & Ethical Issues Haolocene Rise & Fall of American Empire; Holocene The Nucelar Age: Its Science, History, and Ethics Spacetime!
- MA 27900 - Modern Mathematics In Science And Society
- ME 49200 - Technology And Values
- PHYS 31700 - Special Nuclear Materials
- PHYS 49000 - Special Assignments - (Sustain Energy Source)
- POL 32700 - Global Green Politics

College of Science Core: Laboratory Science

Curricular Outcome: Ability to think and function as a scientist

College of Science students will complement critical thinking and analytical abilities gained within their major area of study by completing a two-course sequence and related laboratory experience in a science outside of their major.

Laboratory Science

College of Science students must take a minimum of a one-year sequence of laboratory science.

- BIOL 11000 - Fundamentals Of Biology I and
 - BIOL 11100 - Fundamentals Of Biology II (for life scientists who are not Biology majors)
 - BIOL 12100 - Biology I: Diversity, Ecology, And Behavior and
 - BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms and
 - BIOL 13500 - First Year Biology Laboratory
 - CHM 11500 - General Chemistry
AND
 - CHM 11600 - General Chemistry or
 - CHM 12901 - General Chemistry With A Biological Focus
 - CHM 12500 - Introduction To Chemistry I and
 - CHM 12600 - Introduction To Chemistry II
 - CHM 25500 - Organic Chemistry and
 - CHM 25501 - Organic Chemistry Laboratory
OR
 - CHM 25600 - Organic Chemistry and
 - CHM 25601 - Organic Chemistry Laboratory
 - CHM 26505 - Organic Chemistry
AND
 - CHM 26300 - Organic Chemistry Laboratory or
 - CHM 26500 - Organic Chemistry Laboratory or
 - CHM 26700 - Organic Chemistry Laboratory Honors
 - CHM 26605 - Organic Chemistry
AND
 - CHM 26400 - Organic Chemistry Laboratory or
 - CHM 26600 - Organic Chemistry Laboratory or
 - CHM 26800 - Organic Chemistry Laboratory Honors
 - EAPS 11100 - Physical Geology and
 - EAPS 11200 - Earth Through Time
- PHYSICS**
- Physics I Course**
- PHYS 17200 - Modern Mechanics or
 - PHYS 22000 - General Physics or
 - PHYS 23300 - Physics For Life Sciences I
AND
- Physics II Course**
- PHYS 27200 - Electric And Magnetic Interactions or
 - PHYS 24100 - Electricity And Optics and
 - PHYS 25200 - Electricity And Optics Laboratory or
 - PHYS 22100 - General Physics or
 - PHYS 23400 - Physics For Life Sciences II

College of Science Core: Mathematics

Mathematics

College of Science students must take a minimum of a one-year sequence of single variable calculus.

The following courses are acceptable:

- MA 16100 - Plane Analytic Geometry And Calculus I and
- MA 16200 - Plane Analytic Geometry And Calculus II
OR
- MA 16500 - Analytic Geometry And Calculus I and
- MA 16600 - Analytic Geometry And Calculus II
OR
- An approved two-course mathematics sequence for a particular major

College of Science Core: Multidisciplinary

Curricular Outcome: Ability to function in a multidisciplinary setting.

The multidisciplinary requirement can be met by completing one of the following options:

1. An approved course. Students may choose a course from one of the following approved courses.
2. An approved research project, internship or entrepreneurship program project. To gain approval an experience must involve a multidisciplinary approach to examining a problem or issue, preferably involving multidisciplinary teams at the junior level or above. Students wishing to use an experience to meet the Multidisciplinary requirement are required to complete the Experiential Learning Contract process.
3. An additional major or minor.
 - a) This additional major or minor must give the student experience in another discipline's approach to examining important problems and issues in that discipline.
 - b) It must include at least 3 courses not required for the student's major. Such additional majors and minors will be approved by each College of Science department for use by its students to satisfy this requirement.
4. A Science Education degree.

Multidisciplinary Elective

- ABE 22600 - Biotechnology Laboratory I
- ABE 29000 - Sophomore Seminar
- AGRY 12500 - Environmental Science And Conservation
- AGRY 28500 - World Crop Adaptation And Distribution
- AMST 31000 - Invention, Innovation, And Design
- AMST 32500 - Sports, Technology, And Innovation
- ANSC 10200 - Introduction To Animal Agriculture
- ANTH 21000 - Technology And Culture
- ASEC 35500 - Controversial Science And Media In The Public Sphere
- ASM 23600 - Environmental Systems Management
- ASTR 37000 - Cosmology
- ASTR 56200 - Introduction To High Energy Astrophysics
- ASTR 56300 - Astroparticle Physics
- BCHM 10000 - Introduction To Biochemistry
- BCM 10001 - Introduction To Construction
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 39500 - Special Assignments - (Household Biology & Chemistry)

- BIOL 44215 - Multidisciplinary Design Of Systems And Devices For Physiology Measurements
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 56200 - Neural Systems
- BTNY 28500 - Plants And Civilization
- CHM 29000 - Selected Topics In Chemistry For Lower-Division Students - (Integrated Science) (Not for Biology Majors)
- CHM 48100 - Environmental Chemistry
- CHM 57900 - Computational Chemistry
- CHM 59900 - Special Assignments - (Applied Bioinformatics)
- COM 25100 - Communication, Information, And Society
- CM 10000 - Introduction To Construction Management
- CS 31400 - Numerical Methods
- CS 47800 - Introduction to Bioinformatics
- CS 51400 - Numerical Analysis
- EAPS 10000 - Planet Earth
- EAPS 10400 - Oceanography
- EAPS 10600 - Geosciences In The Cinema
- EAPS 12000 - Introduction To Geography
- EAPS 12500 - Environmental Science And Conservation
- EAPS 12900 - Earth System Dynamics
- EAPS 20000 - Water World: Processes And Challenges In Global Hydrology
- EAPS 32500 - Aviation Meteorology
- EAPS 38500 - Principles Of Engineering Geology
- EAPS 43400 - Weather Analysis And Forecasting
- EDCI 42100 - The Teaching Of Biology In Secondary Schools
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- EDCI 42500 - Teaching Of Secondary Mathematics - Methods I
- ENGL 22300 - Literature And Technology
- ENGL 22600 - Narrative Medicine
- ENGL 23400 - Ecological Literature
- ENGR 31000 - Engineering In Global Context
- ENTM 10500 - Insects: Friend And Foe
- ENTM 12800 - Investigating Forensic Science
- Entrepreneurship and Innovation Certificate
- EPCS 10100 - First Year Participation In EPICS - (Engineering Project in Community Service)
- EPCS 10200 - First Year Participation In EPICS - (Engineering Project in Community Service)
- EPCS 11100 - First Year Participation In EPICS I - (Engineering Project in Community Service)
- EPCS 12100 - First Year Participation In EPICS II - (Engineering Project in Community Service)
- EPCS 20100 - Sophomore Participation In EPICS - (Engineering Project in Community Service)
- EPCS 20200 - Sophomore Participation In EPICS - (Engineering Project in Community Service)
- EPCS 30100 - Junior Participation In EPICS - (Engineering Project in Community Service)
- EPCS 30200 - Junior Participation In EPICS - (Engineering Project in Community Service)
- EPCS 40100 - Senior Participation In EPICS - (Engineering Project in Community Service)
- EPCS 40200 - Senior Participation In EPICS - (Engineering Project in Community Service)
- EPCS 41100 - Senior Design Participation In EPICS - (Engineering Project in Community Service)
- EPCS 41200 - Senior Design Participation In EPICS - (Engineering Project in Community Service)
- EPCS 49000 - EPICS Special Topics Course - (Camp Riley)
- FNR 12500 - Environmental Science And Conservation

- FNR 22310 - Introduction To Environmental Policy
- FNR 23000 - The World's Forests And Society
- FNR 24000 - Wildlife In America
- FS 16100 - Science Of Food
- HIST 30305 - Food In Modern America
- HIST 30605 - Technology And War In U.S. History
- HIST 31405 - Science, Technology, Engineering And Mathematics (STEM) And Gender
- HIST 31305 - Medical Devices And Innovation
- HIST 33205 - The Nuclear Age
- HIST 33300 - Science And Society In Western Civilization I
- HIST 33400 - Science And Society In Western Civilization II
- HIST 35000 - Science And Society In The Twentieth Century World
- HIST 35205 - Death, Disease And Medicine In Twentieth Century American History
- HIST 36305 - The History Of Medicine And Public Health
- HIST 38001 - History Of United States Agriculture
- HIST 38400 - History Of Aviation
- HIST 38700 - History Of The Space Age
- HONR 29900 - Interdisciplinary Honors - Experiential Learning - (Rise/Fall Of The American Emp)
- HONR 39900 - Interdisciplinary Honors - Special Topics Seminar - (Biotechnology: Social & Ethical Issues; The Science of Uncertainty)
- HORT 12100 - Medicine In The Garden
- HORT 30600 - History Of Horticulture
- HSCI 20100 - Principles of Public Health Science
- HSCI 20200 - Essentials Of Environmental, Occupational, And Radiological Health Sciences
- LA 16100 - Land And Society
- MA 37300 - Financial Mathematics
- MA 41600 - Probability
- MA 49000 - Topics In Mathematics For Undergraduates - (Computational Cell Biology)
- MA 51400 - Numerical Analysis
- MA 51900 - Introduction To Probability
- ME 29000 - Global Engineering Professional Seminar
- NRES 12500 - Environmental Science And Conservation
- NUTR 39800 - International Special Topics - (Culture & Food of France)
- PHIL 20700 - Ethics For Technology, Engineering, And Design
- PHIL 22100 - Introduction To Philosophy Of Science
- PHIL 27000 - Biomedical Ethics
- PHYS 52600 - Physics Of Quantum Computing And Quantum Information
- PHYS 56200 - Introduction To High Energy Astrophysics
- PHYS 56300 - Astroparticle Physics
- PHYS 58000 - Computational Physics
- POL 22300 - Introduction To Environmental Policy
- POL 23700 - Modern Weapons And International Relations
- SLHS 11500 - Introduction To Communicative Disorders
- SLHS 21500 - Exploring Audiology And Hearing Science
- SLHS 30900 - Language Development
- STAT 41600 - Probability
- STAT 49000 - Topics In Statistics For Undergraduates - (Introduction to Computing with Data; Basic Probability and Applications)

- STAT 51600 - Basic Probability And Applications
- SYS 35000 - Systems Theories And Approaches
- SYS 30000 - It's A Complex World - Addressing Global Challenges
- STAT 51900 - Introduction To Probability

College of Science Core: Statistics

College of Science students must take a statistics course from an approved list. Please check specific department and/or major requirements as there may be departmental restrictions on which courses are allowed. The following courses and their equivalents may be acceptable:

Statistics

- STAT 30100 - Elementary Statistical Methods
- STAT 35000 - Introduction To Statistics
- STAT 35500 - Statistics For Data Science
- STAT 50300 - Statistical Methods For Biology
- STAT 51100 - Statistical Methods

College of Science Core: Teambuilding and Collaboration

Curricular Outcome: ability to collaborate as **part of a team**. Students will learn the concepts involved in Teaming and Collaboration, such as leadership, developing shared goals, and utilizing strengths of team members. These foundations will allow them to then enter collaborative situations fully prepared to maximize the value of their educational experiences as well as develop positive working relationships with their fellow students.

The Teaming and Collaboration core requirement is met through completion of coursework or an approved experiential learning contract.

Teaming & Collaboration

- BIOL 32800 - Principles Of Physiology
 - CS 17700 - Programming With Multimedia Objects
 - CS 18000 - Problem Solving And Object-Oriented Programming
 - CS 30700 - Software Engineering I
 - CS 40800 - Software Testing
 - EAPS 36000 - Great Issues In Science And Society
 - EAPS 36400 - Natural Hazards: Science And Society
 - EDCI 49800 - Supervised Teaching
 - ENGR 13100 - Transforming Ideas To Innovation I
 - ENGR 14100 - Honors Creativity And Innovation In Engineering Design I
 - ENGR 16100 - Honors Introduction To Innovation And The Physical Science Of Engineering Design I
- ENTR Courses (Exceptions: ENTR 46000 is not approved for Teamwork and Collaboration; Variable Title courses must be approved by the Director of Undergraduate Education)
- ENTR Capstone Course
 - EPCS 10000-40000 Engineering Projects in Community Service

- EPCS 49000 - EPICS Special Topics Course - (Camp Riley)
- PHYS 17200 - Modern Mechanics
- ROTC
- SCI 21000 - Teaming Principles
- STAT 29000 - Topics In Statistics For Undergraduates - (Introduction to Big Data Analysis)
- STAT 47201 - Actuarial Models- Life Contingencies
- TECH 39900 - Special Topics In Technology III - (The Science and Practice of Complex Collaboration)

College of Science: No Count Course List

COLLEGE OF SCIENCE NO COUNT LIST - this is a basic list of courses that cannot be used for any credit to degree requirements.

The "No Count List" of courses can be different depending on a student's major within the College of Science. Please click on the Department that houses the major or on the major itself. Please note, if a student is pursuing more than one major within the College of Science, the student should check the "No Count List" of courses for each major he or she is pursuing. For any Physics course not included on the no count list: students are only allowed to use credit for one course if credit is earned in multiple courses with similar content. Please check with your academic advisor for a complete list of Physics courses with similar content.

Always check with your College of Science academic advisor for courses that can be used to meet major requirements.

Actuarial Science and Actuarial Science Honors Majors

- AGE 21700 - Economics
- ASTR 26300 - Descriptive Astronomy: The Solar System (if taken after ASTR 36300)
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies (if taken after ASTR 36400)
- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- CHM 10000 - Preparation For General Chemistry
- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry
- CHM 20000 - Fundamentals Of Chemistry
- CNIT 100 Level (except CNIT 17500)
- CPT 100 Level
- ECON 21000 - Principles Of Economics
- MA 13700 - Mathematics For Elementary Teachers I
- MA 13800 - Mathematics For Elementary Teachers II
- MA 13900 - Mathematics For Elementary Teachers III
- MA 15300 - College Algebra
- MA 15400
- MA 15900
- MA 15910
- MA 21900
- MA 22000
- MA 22100
- MA 22200

- MA 22300
 - MA 22400
 - MA 23100
 - MA 23200
 - MA 15800 - Precalculus- Functions And Trigonometry
 - MA 16010 - Applied Calculus I *
 - MA 16020 - Applied Calculus II *
 - MA 19000 - Topics In Mathematics For Undergraduates
 - MGMT 30500 - Business Statistics
 - PHIL 35000 - Philosophy And Probability
 - PHYS 14900 - Mechanics, Heat, And Wave Motion
 - PHYS 21400 - The Nature Of Physics
 - PHYS 21500 - Physics For Elementary Education
 - PSY 20100 - Introduction To Statistics In Psychology
 - SOC 38200 - Introduction To Statistics In Sociology
 - STAT 11300 - Statistics And Society
 - STAT 22500 - Introduction To Probability Models
 - STAT 30100 - Elementary Statistical Methods
 - STAT 31100 - Introductory Probability
- * Students that take MA 16010/MA 16020 BEFORE changing to a major in Actuarial Science area are allowed to use the courses in place of MA 16100. Please see an advisor for more information.

Biology Majors

Biochemistry, Biology Education, Biochemistry Honors, Biology, Cell Molecular & Developmental Biology, Ecology Evolution & Environmental Biology, Genetics, Health and Disease, Microbiology, Microbiology Honors, Neurobiology & Physiology, or areas in Pre Dental Studies, Pre Medical Studies, or Pre Veterinary Studies.

- ASTR 26300 - Descriptive Astronomy: The Solar System (if taken after ASTR 36300)
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies (if taken after ASTR 36400)
- BIOL 20100 - Human Anatomy And Physiology
- BIOL 20200 - Human Anatomy And Physiology
- BIOL 20300 - Human Anatomy And Physiology
- BIOL 20400 - Human Anatomy And Physiology
- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- BIOL 22100 - Introduction To Microbiology
- CHM 10000 - Preparation For General Chemistry
- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry
- CHM 20000 - Fundamentals Of Chemistry
- CNIT 100 Level
- CPT 100 Level
- MA 13700 - Mathematics For Elementary Teachers I
- MA 13800 - Mathematics For Elementary Teachers II
- MA 13900 - Mathematics For Elementary Teachers III
- MA 15300 - College Algebra
- MA 15400

- MA 15900
- MA 15910
- MA 22000
- MA 22200
- MA 15800 - Precalculus- Functions And Trigonometry
- MA 19000 - Topics In Mathematics For Undergraduates
- MGMT 30500 - Business Statistics
- PHYS 14900 - Mechanics, Heat, And Wave Motion
- PHYS 21400 - The Nature Of Physics
- PHYS 21500 - Physics For Elementary Education
- PHYS 21800 - General Physics
- PHYS 21900 - General Physics II
- STAT 11300 - Statistics And Society
- STAT 30100 - Elementary Statistical Methods

Chemistry Majors

Biochemistry, Chemistry Education, Chemistry, Chemistry (ACS)

- ASTR 26300 - Descriptive Astronomy: The Solar System (if taken after ASTR 36300)
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies (if taken after ASTR 36400)
- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- CHM 10000 - Preparation For General Chemistry
- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry
- CHM 20000 - Fundamentals Of Chemistry
- CHM 25700 - Organic Chemistry
- CNIT 10000 Level
- CPT 10000 Level
- MA 13700 - Mathematics For Elementary Teachers I
- MA 13800 - Mathematics For Elementary Teachers II
- MA 13900 - Mathematics For Elementary Teachers III
- MA 15300 - College Algebra
- MA 15400
- MA 15900
- MA 21900
- MA 22000
- MA 22100
- MA 22200
- MA 23100
- MA 23200
- MA 15800 - Precalculus- Functions And Trigonometry
- MGMT 30500 - Business Statistics
- PHYS 14900 - Mechanics, Heat, And Wave Motion
- MA 19000 - Topics In Mathematics For Undergraduates
- PHYS 21400 - The Nature Of Physics

- PHYS 21500 - Physics For Elementary Education
- STAT 11300 - Statistics And Society

Computer Science Majors

Computer Science, Computer Science Honors

- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- ASTR 26300 - Descriptive Astronomy: The Solar System (if taken after ASTR 36300)
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies (if taken after ASTR 36400)
- CHM 10000 - Preparation For General Chemistry
- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry
- CHM 20000 - Fundamentals Of Chemistry
- CNIT 100 Level
- CIS 20400
- CPT 100 Level
- HTML All Courses
- CS 15900 - C Programming
- CS 17700 - Programming With Multimedia Objects (if taken after CS 18000)
- CS 23500 - Introduction To Organizational Computing
- MA 13700 - Mathematics For Elementary Teachers I
- MA 13800 - Mathematics For Elementary Teachers II
- MA 13900 - Mathematics For Elementary Teachers III
- MA 15300 - College Algebra
- MA 15400
- MA 15900
- MA 15910
- MA 21900
- MA 22000
- MA 22100
- MA 22200
- MA 22300
- MA 22400
- MA 23100
- MA 23200
- MA 15800 - Precalculus- Functions And Trigonometry
- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- MA 19000 - Topics In Mathematics For Undergraduates
- MGMT 30500 - Business Statistics
- PHIL 15000 - Principles Of Logic
- PHIL 35000 - Philosophy And Probability
- PHYS 14900 - Mechanics, Heat, And Wave Motion
- PHYS 21400 - The Nature Of Physics
- PHYS 21500 - Physics For Elementary Education

- STAT 11300 - Statistics And Society
- STAT 30100 - Elementary Statistical Methods

Earth, Atmospheric, & Planetary Science Majors

Atmospheric Science, Environmental Geosciences, Earth/Space Science Teaching, Geology & Geophysics, Planetary Sciences

- ASTR 26300 - Descriptive Astronomy: The Solar System (if taken after ASTR 36300)
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies (if taken after ASTR 36400)
- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- CHM 10000 - Preparation For General Chemistry
- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry
- CHM 20000 - Fundamentals Of Chemistry
- CPT 10000 Level
- CNIT 10000 Level
- EAPS 22100 - Survey Of Atmospheric Science
and
- EAPS 22500 - Science Of The Atmosphere
- MA 13700 - Mathematics For Elementary Teachers I
- MA 13800 - Mathematics For Elementary Teachers II
- MA 13900 - Mathematics For Elementary Teachers III
- MA 15300 - College Algebra
- MA 15400
- MA 15900
- MA 15910
- MA 21900
- MA 22000
- MA 22100
- MA 22200
- MA 22300
- MA 22400
- MA 23100
- MA 23200
- MA 15800 - Precalculus- Functions And Trigonometry
- MA 16010 - Applied Calculus I *
- MA 19000 - Topics In Mathematics For Undergraduates
- MA 16020 - Applied Calculus II *
- MGMT 30500 - Business Statistics
- PHYS 14900 - Mechanics, Heat, And Wave Motion
- PHYS 21400 - The Nature Of Physics
- PHYS 21500 - Physics For Elementary Education
- PHYS 21800 - General Physics **
- PHYS 21900 - General Physics II **
- STAT 11300 - Statistics And Society

* Students that take MA 16010/MA 16020 BEFORE changing to a major in Earth, Atmospheric, and Planetary Sciences are allowed to use the courses in place of MA 16100.

** GEOP and ENVG majors can use PHYS 21800/PHYS 21900 for a substitute for PHYS 22000/PHYS 22100.

Interdisciplinary Science Majors

(all concentrations)

- ASTR 26300 - Descriptive Astronomy: The Solar System (if taken after ASTR 36300)
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies (if taken after ASTR 36400)
- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- CHM 10000 - Preparation For General Chemistry
- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry
- CHM 20000 - Fundamentals Of Chemistry
- CPT 10000 Level
- CNIT 10000 Level
- MA 13700 - Mathematics For Elementary Teachers I
- MA 13800 - Mathematics For Elementary Teachers II
- MA 13900 - Mathematics For Elementary Teachers III
- MA 15300 - College Algebra
- MA 15400
- MA 15800
- MA 15900
- MA 15910
- MA 21900
- MA 22000
- MA 22100
- MA 22200
- MA 15800 - Precalculus- Functions And Trigonometry
- MA 19000 - Topics In Mathematics For Undergraduates
- MGMT 30500 - Business Statistics
- PHYS 14900 - Mechanics, Heat, And Wave Motion
- PHYS 21400 - The Nature Of Physics
- PHYS 21500 - Physics For Elementary Education
- STAT 11300 - Statistics And Society
- STAT 30100 - Elementary Statistical Methods

Mathematics Education Majors

- ASTR 26300 - Descriptive Astronomy: The Solar System (if taken after ASTR 36300)
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies (if taken after ASTR 36400)
- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- CHM 10000 - Preparation For General Chemistry

- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry
- CHM 20000 - Fundamentals Of Chemistry
- CNIT 100 Level
- CPT 100 Level
- MA 13700 - Mathematics For Elementary Teachers I
- MA 13800 - Mathematics For Elementary Teachers II
- MA 13900 - Mathematics For Elementary Teachers III
- MA 15300 - College Algebra
- MA 15400
- MA 15900
- MA 15910
- MA 21900
- MA 22000
- MA 22100
- MA 22200
- MA 22300
- MA 22400
- MA 23100
- MA 23200
- MA 15800 - Precalculus- Functions And Trigonometry
- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- MA 19000 - Topics In Mathematics For Undergraduates
- MGMT 30500 - Business Statistics
- PHIL 35000 - Philosophy And Probability
- PHYS 14900 - Mechanics, Heat, And Wave Motion
- PHYS 21400 - The Nature Of Physics
- PHYS 21500 - Physics For Elementary Education
- PSY 20100 - Introduction To Statistics In Psychology
- SOC 38200 - Introduction To Statistics In Sociology
- STAT 11300 - Statistics And Society
- STAT 22500 - Introduction To Probability Models
- STAT 30100 - Elementary Statistical Methods

Math/Statistics Majors

Applied Mathematics, Mathematics/Business or Business Math, Mathematics-Computer Science, Mathematics Honors, Mathematics/Statistics, Core Mathematics, Applied Statistics, Statistics Honors, Statistics - Math Emphasis

- ASTR 26300 - Descriptive Astronomy: The Solar System (if taken after ASTR 36300)
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies (if taken after ASTR 36400)
- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- CHM 10000 - Preparation For General Chemistry
- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry
- CHM 20000 - Fundamentals Of Chemistry

- CPT 10000 Level
 - CNIT 10000 Level
 - MA 13700 - Mathematics For Elementary Teachers I
 - MA 13800 - Mathematics For Elementary Teachers II
 - MA 13900 - Mathematics For Elementary Teachers III
 - MA 15300 - College Algebra
 - MA 15400
 - MA 15900
 - MA 15910
 - MA 21900
 - MA 22000
 - MA 22100
 - MA 22200
 - MA 22300
 - MA 22400
 - MA 23100
 - MA 23200
 - MA 15800 - Precalculus- Functions And Trigonometry
 - MA 16010 - Applied Calculus I *
 - MA 16020 - Applied Calculus II *
 - MA 19000 - Topics In Mathematics For Undergraduates
 - MGMT 30500 - Business Statistics
 - PHIL 35000 - Philosophy And Probability
 - PHYS 14900 - Mechanics, Heat, And Wave Motion
 - PHYS 21400 - The Nature Of Physics
 - PHYS 21500 - Physics For Elementary Education
 - PSY 20100 - Introduction To Statistics In Psychology
 - SOC 38200 - Introduction To Statistics In Sociology
 - STAT 11300 - Statistics And Society
 - STAT 22500 - Introduction To Probability Models
 - STAT 30100 - Elementary Statistical Methods
 - STAT 31100 - Introductory Probability
- * Students that take MA 16010/MA 16020 BEFORE changing to a major in the Mathematics Department are allowed to use the courses in place of MA 16100. Please see an advisor for more information.

Physics Majors

Applied Physics, Applied Physics Honors, Physics Education, Physics, Physics Honors

- ASTR 26300 - Descriptive Astronomy: The Solar System (if taken after ASTR 36300)
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies (if taken after ASTR 36400)
- BIOL 20500 - Biology For Elementary School Teachers
- BIOL 20600 - Biology For Elementary School Teachers
- CHM 10000 - Preparation For General Chemistry
- CHM 11100 - General Chemistry
- CHM 11200 - General Chemistry
- CHM 20000 - Fundamentals Of Chemistry
- CNIT 100 Level

- CPT 100 Level
- MA 13700 - Mathematics For Elementary Teachers I
- MA 13800 - Mathematics For Elementary Teachers II
- MA 13900 - Mathematics For Elementary Teachers III
- MA 15300 - College Algebra
- MA 15400
- MA 15900
- MA 15910
- MA 21900
- MA 22000
- MA 22100
- MA 22200
- MA 22300
- MA 22400
- MA 23100
- MA 23200
- MA 15800 - Precalculus- Functions And Trigonometry
- MA 19000 - Topics In Mathematics For Undergraduates
- MGMT 30500 - Business Statistics
- PHYS 14900 - Mechanics, Heat, And Wave Motion
- PHYS 21400 - The Nature Of Physics
- PHYS 21500 - Physics For Elementary Education
- PHYS 21800 - General Physics
- PHYS 21900 - General Physics II
- PHYS 22000 - General Physics
- PHYS 22100 - General Physics
- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- STAT 11300 - Statistics And Society

Department of Biological Sciences

About the Biological Sciences Program

Discovery. This word captures our purpose, commitment, and vision. As a leading department in a major research university, our mission is to effectively integrate learning, discovery, and engagement. The best learning is experiential, and leads to a clear understanding of how discoveries are made, how science is conducted, and how ideas are communicated. The best learning is facilitated by faculty who are active in research and who can engage students in the excitement of biology. And the best learning results in alumni who are well-prepared to successfully pursue their chosen careers.

As we discover the many facets of biocomplexity, from vast ecosystems to the structure and function of individual molecules, we remain committed to our mission. Our faculty, staff, and students are engaged with the communities of science and education, the worlds of industry and business, and our alumni and friends. To each individual who joins us, we promise opportunities to experience the excitement of discovery in biology. We encourage you to become a part of our team-as a student, alumnus, corporate partner, scientific collaborator, or a member of our faculty and staff. Join us on our journey of learning, discovery, and engagement. Discover Biology at Purdue!

Faculty

Department of Biological Sciences Website

Contact Information

The Department of Biological Sciences address is:
915 W. State Street West Lafayette, IN 47907-2054

Main Office

Contact person: Amanda Jenkins
Phone Number: (765) 494-4408
Fax No. is: (765) 494-0876

Graduate Information

For Graduate Information please see Biological Sciences Graduate Program Information.

Baccalaureate

Biochemistry (Biology), BS

About the Program

Biochemistry investigates the chemical and molecular foundations of life processes. A student may study the transfer of genetic information into biological structures, the conversion of nutrients into cell constituents and their utilization as sources of energy, the storage of memory, and the chemical nature of neural processes. Laboratory techniques include electrophoresis, chromatography, Western blotting, protein sequence analysis, and peptide mapping. Understanding the development and application of enzymatic assays is fundamental to this field of study. This rigorous curriculum is excellent preparation for a number of careers in both academic and industrial research, including cancer and AIDS research, medicine, veterinary medicine, dentistry, structural biology, genetics, and medicinal chemistry and drug development.

Biochemistry Website

Biochemistry (Biology) Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (42-45 credits)

A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior (satisfies Science, Technology & Society Selective for core) ♦
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors

Upper Level Biology Coursework (16 credits)

- BCHM 56100 - General Biochemistry I
- BCHM 56200 - General Biochemistry II
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 59500 - Special Assignments -Meth Meas Biophys Chem
- CHM 33901 - Biochemistry Laboratory

Intermediate Biology Selective (3 credits)

- BIOL 39500 - Special Assignments -Macromolecules

Biology Selective (2-3 credits)

Choose one from this list: [Biology Selectives List for Biochemistry.](#)

Base Lab Requirement (2-4 credits)

Click [Base Lab Requirements](#) for all Biology majors for additional lists.

Other Departmental Requirements: (57-85 credits)

Chemistry Selectives (20-23 credits)

Required Course (5 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦

Organic Chemistry Selectives (8 credits)

Choose one sequence.

- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
- CHM 25600 - Organic Chemistry
- CHM 25601 - Organic Chemistry Laboratory
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory

Analytical Chemistry Selective (3-4 credits)

Choose one.

- BCHM 22100 - Analytical Biochemistry
- CHM 32100 - Analytical Chemistry I

Physical Chemistry Selective (4-6 credits)

Choose one option.

- CHM 37200 - Physical Chemistry
- CHM 37300 - Physical Chemistry and
- CHM 37400 - Physical Chemistry

Physics Selectives (8 credits)

Choose one sequence.

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 17200 - Modern Mechanics (satisfies Science for core)
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Calculus Selectives (8-10 credits)

Choose one sequence.

- MA 16100 - Plane Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16500 - Analytic Geometry And Calculus I
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements (21-44 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAMBUILDING AND COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with required major courses.

MATHEMATICS - Met with Calculus Selectives (satisfies Quantitative Reasoning for University Core)

STATISTICS - Credit Hours: 3.00

- STAT 50300 - Statistical Methods For Biology
- COMPUTING** - Credit Hours: 3.00-4.00
- CS 17700 - Programming With Multimedia Objects ♦ or
 - CS 15900 - C Programming ♦ or
 - CS 18000 - Problem Solving And Object-Oriented Programming ♦
- GENERAL EDUCATION^** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00
- General Education Option I
 - General Education Option II
 - General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-21 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments (see above for titles)
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

17-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

- Science Core Selection - Credit Hours: 3.00

17-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- COM 21700 - Science Writing And Presentation
- CHM 25600 - Organic Chemistry
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

15 Credits

Fall 3rd Year

- BCHM 56100 - General Biochemistry I
- BIOL 39500 - Special Assignments - Macromolecules
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- BIOL 41500 - Introduction To Molecular Biology

- BCHM 56200 - General Biochemistry II
- CHM 33901 - Biochemistry Laboratory
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

15-16 Credits

Fall 4th Year

- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 59500 - Special Assignments - Methods & Measurements in Biophysical Chemistry
- BCHM 22100 - Analytical Biochemistry or
- CHM 32100 - Analytical Chemistry I
- Biology Selective - Credit Hours: 2.00 - 3.00
- Great Issues in Science Selective - Credit Hours: 3.00

14-16 Credits

Spring 4th Year

- STAT 50300 - Statistical Methods For Biology
- CHM 37200 - Physical Chemistry or
- CHM 37300 - Physical Chemistry and CHM 37400 - Physical Chemistry
- Science Core Selection - Credit Hours: 3.00
- Base Lab Requirement - Credit Hours: 2.00 - 4.00
- Elective - Credit Hours: 1.00

13-15 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)

ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Biochemistry Honors, BS

About the Program

Biochemistry investigates the chemical and molecular foundations of life processes. A student may study the transfer of genetic information into biological structures, the conversion of nutrients into cell constituents and their utilization as sources of energy, the storage of memory, and the chemical nature of neural processes. Laboratory techniques include electrophoresis, chromatography, Western blotting, protein sequence analysis, and peptide mapping. Understanding the development and application of enzymatic assays is fundamental to this field of study. This rigorous curriculum is excellent preparation for a number of careers in both academic and industrial research, including cancer and AIDS research, medicine, veterinary medicine, dentistry, structural biology, genetics, and medicinal chemistry and drug development.

[Biochemistry Website](#)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses (42-45 credits)

A 3.0 or higher graduation index is required to graduate in the Biochemistry Honors Curriculum

A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (satisfies Science, Technology & Society Selective for core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors

Upper Level Biology Coursework (16 credits)

- BCHM 56100 - General Biochemistry I
- BCHM 56200 - General Biochemistry II
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 59500 - Special Assignments - Meth Meas Biophys Chem
- CHM 33901 - Biochemistry Laboratory

Intermediate Biology Selective (3 credits)

- BIOL 39500 - Special Assignments -Macromolecules

Biology Selective (2-3 credits)

Choose one from this list: Biology Selectives for Biochemistry.

Base Lab Requirement (2-4 credits)

Click Base Lab Requirements for all Biology majors for additional lists.

Other Departmental Requirements: (57-85 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

Chemistry Selectives (20-23 credits)

Required Course (5 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦

Organic Chemistry Selectives (8 credits)

Choose one sequence.

- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
- CHM 25600 - Organic Chemistry
- CHM 25601 - Organic Chemistry Laboratory
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory

Analytical Chemistry Selective (3-4 credits)

Choose one.

- BCHM 22100 - Analytical Biochemistry
- CHM 32100 - Analytical Chemistry I
*For the Biochemistry Honors Major, you must complete either CHM 32100 or both CHM 37300 and CHM 37400.

Physical Chemistry Selective (4-6 credits)

Choose one option.

- CHM 37200 - Physical Chemistry
- CHM 37300 - Physical Chemistry and
- CHM 37400 - Physical Chemistry
*For the Biochemistry Honors Major, you must complete either CHM 32100 or both CHM 37300 and CHM 37400.

Physics Selectives (8 credits)

Choose one sequence.

- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Calculus Selectives (8-10 credits)

Choose one sequence.

- MA 16100 - Plane Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16500 - Analytic Geometry And Calculus I
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements (21-44 credits)

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with required major courses.

MATHEMATICS- Met with required major courses.

STATISTICS - Credit Hours: 3.00

- STAT 50300 - Statistical Methods For Biology
- **COMPUTING** - Credit Hours: 3.00-4.00
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- **GENERAL EDUCATION[^]** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00
- General Education Option I
- General Education Option II
- General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-21 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments (see titles above)
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

17-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or

- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

17-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- COM 21700 - Science Writing And Presentation
- CHM 25600 - Organic Chemistry
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- PHYS 17200 - Modern Mechanics
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15 Credits

Fall 3rd Year

- BCHM 56100 - General Biochemistry I
- BIOL 39500 - Special Assignments - Macromolecules
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

16-17 Credits

Spring 3rd Year

- BIOL 41500 - Introduction To Molecular Biology
- BCHM 56200 - General Biochemistry II
- CHM 33901 - Biochemistry Laboratory
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 2.00

15 Credits

Fall 4th Year

- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 59500 - Special Assignments - Methods & Measurement in Biophysical Chemistry
- BCHM 22100 - Analytical Biochemistry or
- CHM 32100 - Analytical Chemistry I
- Great Issue Course Option - Credit Hours: 3.00
- Biology Selective - Credit Hours: 2.00 - 3.00

14-16 Credits

Spring 4th Year

- STAT 50300 - Statistical Methods For Biology
- CHM 37200 - Physical Chemistry or
- CHM 37300 - Physical Chemistry and CHM 37400 - Physical Chemistry
- Science Core Selection - Credit Hours: 1.00 - 4.00
- Base Lab Requirement- Credit Hours: 2.00 - 4.00
- Elective - Credit Hours: 2.00

14-16 Credits

Notes

- 3.0 Graduation GPA required for Biochemistry Honors major.
- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
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GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Biology, BS

About the Program

The Biology major allows a student to pursue a general curriculum with the bachelor of science as a terminal degree or as preparation for graduate work or professional school. This major is designed to give a student maximum flexibility in designing a plan of study suited to individual needs and interests. This curriculum is excellent preparation for a number of careers in both academic and industrial research and professions in medicine, dentistry, and veterinary medicine.

[Biology Website](#)

[Biology Major Change \(CODO\) Requirements](#)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the preceding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses (35-36 credits)

A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (fulfills Science, Technology, & Society for core; also fulfills Multidisciplinary Experience for College of Science Core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors

Intermediate Selective (3-4 credits)

Choose one of the options below.

- BIOL 32800 - Principles Of Physiology
- BIOL 39500 - Special Assignments -Macromolecules
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43600 - Neurobiology
- BIOL 43800 - General Microbiology
- BIOL 36700 - Principles Of Development and
- BIOL 36701 - Principles Of Development Lab

Upper Level Biology Coursework (13 credits)

Must have 12 credits of electives from the Biology Selectives and the Base Lab requirements.

Base Lab requirements may overlap with Groups A and/or B, but must still have 12 credits of selectives total.

These 12 credits may not overlap with the Biology Intermediate or Chemistry Selective requirements.

- CHM 33901 - Biochemistry Laboratory
- Biology Selective: Group A
- Biology Selective: Group B
- Biology Selective: 50000-level (Group A or B)
- Biology Selective: Additional Course from Group A or B or course listed below
Additional Course Options:
- BIOL 36701 - Principles Of Development Lab
- BIOL 44100 - Biology Senior Seminar In Genetics
- BIOL 44201 - Introductory Module: Protein Expression (credit not allowed for both BIOL 44201 and CHM 33901)
- BIOL 49400 - Biology Research , maximum 3 credits
- BIOL 49900 - Biology Honors Thesis Research , maximum 3 credits

- BIOL 59500 - Special Assignments -Laboratory in Ecology

Base Lab Requirement

Click Base Lab Requirements for all Biology majors for additional lists.

Other Departmental Requirements: (51-76 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

Chemistry Selectives (16-17 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦*

Organic Chemistry

Choose one sequence.

- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory

Chemistry Selective

Choose one.

- BCHM 22100 - Analytical Biochemistry
- BCHM 56100 - General Biochemistry I
- CHM 32100 - Analytical Chemistry I
- CHM 33900 - Biochemistry: A Molecular Approach
- CHM 37200 - Physical Chemistry
- CHM 37300 - Physical Chemistry
- CHM 53300 - Introductory Biochemistry

*Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and 33901.

Physics Selectives (8 credits)

Select one sequence.

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 17200 - Modern Mechanics

- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Calculus Selectives (6-10 credits)

Choose one sequence.

- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- MA 16100 - Plane Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16500 - Analytic Geometry And Calculus I
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - HONR 19903 - Interdisciplinary Approaches In Writing or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- TECHNICAL WRITING AND PRESENTATION*** - Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE[^]* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE* - (satisfies Science, Technology, Society for core) - Met with required major course.

LABORATORY SCIENCE - Met with required major courses.

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with required major courses.

STATISTICS - Credit Hours: 3.00

- STAT 50300 - Statistical Methods For Biology
- COMPUTING** - Credit Hours: 3.00-4.00
- CS 17700 - Programming With Multimedia Objects ♦ or
 - CS 15900 - C Programming ♦ or
 - CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (8-34 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments (See above for specific titles.) or
- ABE 22600 - Biotechnology Laboratory I
- MA 16010 - Applied Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16020 - Applied Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Elective - Credit Hours: 3.00

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- COM 21700 - Science Writing And Presentation
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- CHM 33901 - Biochemistry Laboratory
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15-17 Credits

Fall 3rd Year

- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- Intermediate Biology Selective - Credit Hours: 3.00
- Group A Selective - Credit Hours: 2.00 - 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory
- Group B Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Team-Building & Collaboration - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

14-15 Credits

Fall 4th Year

- STAT 50300 - Statistical Methods For Biology
- Base Lab Requirement - Credit Hours: 2.00 - 4.00
- Great Issues in Science - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

14-18 Credits

Spring 4th Year

- Biology Selective 50000 Level - Credit Hours: 3.00
- Biology Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Cell, Molecular, and Developmental Biology, BS

About the Program

Understanding how eukaryotic cells process information from their environment and initiate programs of gene expression leading to growth, development, and functional specification is the essence of a cell, molecular, and developmental (CMD) biology major. Students enrolled in this curriculum will take courses providing a solid foundation in the molecular biology of cells and gain a full appreciation of how molecular complexes interact to make a cell function. This fundamental knowledge in cell and molecular biology will be applied through further coursework in genetics and developmental biology to examine how eukaryotic organisms function and how specific aspects of that function are perturbed by disease. Within the CMD major, students have the option of focusing their studies on animal systems, plant systems, or both. Graduates with a CMD major are well-prepared to pursue careers in academic or

industrial research, biotechnology, genetic engineering, medicine, veterinary medicine, and other health-related professions.

Cell, Molecular, and Developmental Biology Website

Cell, Molecular, and Developmental Biology Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience

- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click here.

Departmental/Program Major Courses (39-41 credits)

A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (satisfies Science, Technology & Society Selective for core)(May also meet Multidisciplinary Experience requirement for College of Science core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors

Upper Level Biology Coursework (13 credits)

*Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and CHM 33901.

- CHM 33901 - Biochemistry Laboratory

CMBD Selective I (6 credits)

Choose two courses from the following list. Neither course may overlap with Intermediate Biology or Biology Selective requirements.

- BIOL 41500 - Introduction To Molecular Biology
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 48100 - Eukaryotic Genetics
- BIOL 36700 - Principles Of Development
- BIOL 36701 - Principles Of Development Lab

CMBD Selective II (3 credits)

- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 59500 - Special Assignments
 - Cell Biology Of Plants
 - Epigenetics In Human Disease
 - Genetics Omics Host Microbe
 - Pathways Human Health & Disease
 - Theory Of Molecular Methods

Chemistry Selective (3 credits)

Choose one.

- BCHM 56100 - General Biochemistry I
- CHM 33900 - Biochemistry: A Molecular Approach *
- CHM 53300 - Introductory Biochemistry

Intermediate Biology Selective (3 credits)

Choose one option below; cannot duplicate CMBD or Biology Selectives.

- BIOL 36700 - Principles Of Development
- BIOL 36701 - Principles Of Development Lab
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 42000 - Eukaryotic Cell Biology

Biology Selective (3 credits)

Select 3 credits from this list: Biology Selectives List for Cell, Molecular and Developmental Biology.

Base Lab Requirement

Click Base Lab Requirements for all Biology majors for additional lists.

Other Departmental Requirements: (48-75 credits)

Chemistry (13 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦*
- **ORGANIC CHEMISTRY SELECTIVES** - choose one sequence.
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
- CHM 26505 - Organic Chemistry ♦

- CHM 26300 - Organic Chemistry Laboratory
 - CHM 26605 - Organic Chemistry ♦
 - CHM 26400 - Organic Chemistry Laboratory
- * Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and CHM 33901.

Physics (8 credits)

Choose one sequence.

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Calculus (6-10 credits)

Choose one Calculus I course and one Calculus II course.

- MA 16010 - Applied Calculus I
- MA 16100 - Plane Analytic Geometry And Calculus I
- MA 16500 - Analytic Geometry And Calculus I
- MA 16020 - Applied Calculus II
- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements (21-44 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

- **FIRST-YEAR COMPOSITION** – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing
- **TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)
- **TEAM-BUILDING & COLLABORATION*** - Credit Hours: 0.00 - 3.00
- **LANGUAGE & CULTURE^*** - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)
 - Language/Culture Option I
 - Language/Culture Option II
 - Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with Required Major Courses

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with Required Major Courses

STATISTICS - Credit Hours: 3.00

- STAT 50300 - Statistical Methods For Biology

COMPUTING - Credit Hours: 3.00-4.00

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

^{*}Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (4-33 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦

- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments -see above for specific titles
- MA 16010 - Applied Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry
- CHM 26300 - Organic Chemistry Laboratory
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16020 - Applied Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- COM 21700 - Science Writing And Presentation
- CHM 25600 - Organic Chemistry
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- CHM 33901 - Biochemistry Laboratory
- BCHM 56100 - General Biochemistry I or
- CHM 33900 - Biochemistry: A Molecular Approach or
- CHM 53300 - Introductory Biochemistry
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15-16 Credits

Fall 3rd Year

- BIOL 36700 - Principles Of Development and BIOL 36701 - Principles Of Development Lab or
- BIOL 41500 - Introduction To Molecular Biology or
- BIOL 42000 - Eukaryotic Cell Biology

- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

CMD Selective I

- BIOL 36700 - Principles Of Development and BIOL 36701 - Principles Of Development Lab or
- BIOL 41500 - Introduction To Molecular Biology or
- BIOL 42000 - Eukaryotic Cell Biology or
- BIOL 48100 - Eukaryotic Genetics
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory or
- PHYS 27200 - Electric And Magnetic Interactions
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

16-17 Credits

Fall 4th Year

- STAT 50300 - Statistical Methods For Biology
CMD Selective I
- BIOL 36700 - Principles Of Development and BIOL 36701 - Principles Of Development Lab or
- BIOL 41500 - Introduction To Molecular Biology or
- BIOL 42000 - Eukaryotic Cell Biology or
- BIOL 48100 - Eukaryotic Genetics
- Base Lab Requirement - Credit Hours: 2.00-4.00
- Great Issues In Science - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

14-16 Credits

Spring 4th Year

CMD Selective II

- BIOL 51600 - Molecular Biology Of Cancer or
- BIOL 55001 - Eukaryotic Molecular Biology or
- BIOL 59500 - Special Assignments -see above for specific titles
- Biology Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Team-Building & Collaboration - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

16 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean

PTGS-Portuguese	RUSS-Russian	SPAN-Spanish
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Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Ecology, Evolution, and Environmental Biology, BS

About the Program

This major investigates how organisms interact with their physical environment and other organisms, from an evolutionary perspective. Ecologists' work includes research and/or teaching involving population genetics and evolution, adaptive strategies for survival, the nature of populations, and community ecology. Ecologists also offer technical services in connection with environmental impact decisions and regional planning, and environmental education at various levels as teacher, naturalist, or journalist. Common career paths for undergraduate students include graduate study leading to academic positions (research and teaching in small colleges and major universities), technical positions in industry (mostly dealing with environmental assessment), and employment in state and federal environmental agencies.

[Ecology, Evolution, and Environmental Sciences Website](#)

[Ecology, Evolution, and Environmental Biology Major Change \(CODO\) Requirements](#)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major

2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the preceding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses (37-43 credits)

*A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (satisfies Science, Technology & Society Selective for core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors

Required Upper Level Biology Coursework

- BIOL 58000 - Evolution
- BIOL 59500 - Special Assignments - (Ecology - 3 credits, Laboratory in Ecology - 1 credit)
- CHM 33901 - Biochemistry Laboratory

Ecology Selective

Select one: May not overlap with Biology Selective

- BIOL 58210 - Ecological Statistics
- BIOL 58705 - Animal Communication
- BIOL 59100 - Field Ecology
- BIOL 59200 - The Evolution Of Behavior
- BIOL 59500 - Special Assignments -Disease Ecology

Intermediate Biology Selective (3-4 credits)

Choose one of the options below.

- BIOL 32800 - Principles Of Physiology
- BIOL 39500 - Special Assignments -Macromolecules
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43600 - Neurobiology
- BIOL 43800 - General Microbiology
- BIOL 36700 - Principles Of Development and
- BIOL 36701 - Principles Of Development Lab

Biology Selective

Select 1 course from this list:

Biology Selectives List for Ecology, Evolution and Environmental Biology

Base Lab Requirement

See Base Lab Requirements for all Biology majors for additional course listings.

Other Departmental /Program Course Requirements (51-79 credits)

Chemistry (13 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦*
- **ORGANIC CHEMISTRY SELECTIVES** - Choose one sequence.
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory

Chemistry Selective (3-4 credits)

Select one of the following options:

- BCHM 22100 - Analytical Biochemistry
- BCHM 56100 - General Biochemistry I
- CHM 32100 - Analytical Chemistry I
- CHM 33900 - Biochemistry: A Molecular Approach
- CHM 37200 - Physical Chemistry
- CHM 37300 - Physical Chemistry
- CHM 53300 - Introductory Biochemistry

*Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and 33901.

Physics (8 credits)

Choose one sequence.

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Calculus (6-10 credits)

Choose one sequence.

- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- MA 16100 - Plane Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16500 - Analytic Geometry And Calculus I
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements (21-44 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

- **FIRST-YEAR COMPOSITION** – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing
- **TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with Required Major Courses

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with Required Major courses

STATISTICS - Credit Hours: 3.00

- STAT 50300 - Statistical Methods For Biology
- **COMPUTING** - Credit Hours: 3.00-4.00
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- **GENERAL EDUCATION^** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-32 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments -see title options above.
- MA 16010 - Applied Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (BIOL 11500 strongly recommended)

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16020 - Applied Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- COM 21700 - Science Writing And Presentation
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-16 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- CHM 33901 - Biochemistry Laboratory
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (BIOL 29300 strongly recommended)
- Elective - Credit Hours: 1.00

16-18 Credits

Fall 3rd Year

- BIOL 59500 - Special Assignments - (Ecology - 3 credits, Laboratory in Ecology - 1 credit)
- STAT 50300 - Statistical Methods For Biology
- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

17 Credits

Spring 3rd Year

- BIOL 58210 - Ecological Statistics or
- BIOL 58705 - Animal Communication or
- BIOL 59100 - Field Ecology or
- BIOL 59200 - The Evolution Of Behavior or
- BIOL 59500 - Special Assignments -Disease Ecology
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

14-16 Credits

Fall 4th Year

- Intermediate Biology Selective - Credit Hours: 3.00 - 4.00
- Base Lab Requirements for all Biology majors - Credit Hours: 2.00 - 4.00
- Biology Selective - Credit Hours: 2.00 - 4.00
- Great Issues Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16-21 Credits

Spring 4th Year

- BIOL 58000 - Evolution
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

- Elective - Credit Hours: 2.00

14 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Genetics, BS

About the Program

Genetics is the science of information transfer from one generation to another. We learn the laws of inheritance in all creatures big and small, how they evolve and how they change. On the molecular level we learn about DNA and RNA, on the cellular level we discover what makes a cell cancerous, and on an organismal level we examine the reproductive habits of various organisms. Crucial principles include the structure, function, and transmission of genes. Laboratory

techniques explore genetic engineering from the "inside." Genetics is crucial to all of biology, hence a genetics major has great flexibility. This is excellent preparation for advanced study in biological sciences, law, genetic counseling, and many health-related professions.

Genetic Biology Website

Genetics Major Change (CODO) Requirements

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Degree Requirements

120 Credits Required

Departmental/Program Major Courses (38-41 credits)

A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (satisfies Science, Technology & Society for core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr 1 Bio Lab Phges Flds-Honors

Intermediate Biology Selective (3-4 credits)

Choose one of the following options.

- BIOL 32800 - Principles Of Physiology
- BIOL 39500 - Special Assignments -Macromolecules
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43600 - Neurobiology
- BIOL 36700 - Principles Of Development and
- BIOL 36701 - Principles Of Development Lab

Upper Level Biology Coursework (8 credits)

- BIOL 44100 - Biology Senior Seminar In Genetics
 - BIOL 48100 - Eukaryotic Genetics
 - CHM 33901 - Biochemistry Laboratory *
 - BCHM 56100 - General Biochemistry I or
 - CHM 33900 - Biochemistry: A Molecular Approach * or
 - CHM 53300 - Introductory Biochemistry
- * Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and CHM 33901.

Biology Selectives (6 credits)

Area 1 - Choose one:

- AGRY 53000 - Advanced Plant Genetics
- ANSC 51100 - Population Genetics
- BIOL 43800 - General Microbiology
- BIOL 44400 - Human Genetics
- BIOL 47800 - Introduction to Bioinformatics

Area 2 - Choose one:

- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 58000 - Evolution
- BIOL 59500 - Special Assignments
 - Epigenetics In Human Disease
 - Genetics Omics Host Microbe
 - Pathways Human Health & Disease
 - Theory Of Molecular Methods

Base Lab Requirement (2-4 credits)

Click Base Lab Requirements for all Biology majors for additional lists.

Other Departmental Requirements: (48-75 credits)

Chemistry (13 credits)

- CHM 12901 - General Chemistry With A Biological Focus *
ORGANIC CHEMISTRY SELECTIVES - Choose one sequence.
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory

- CHM 26605 - Organic Chemistry ♦
 - CHM 26400 - Organic Chemistry Laboratory
- * Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and 33901.

Physics (8 credits)

Choose one sequence.

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Calculus (6-10 credits)

Choose one sequence.

- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- MA 16100 - Plane Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16500 - Analytic Geometry And Calculus I
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements (21-44 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION - Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION* - Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE[^]* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with Required Major Courses

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with Required Major Courses

STATISTICS - Credit Hours: 3.00

- STAT 50300 - Statistical Methods For Biology

COMPUTING - Credit Hours: 3.00-4.00

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

^{*}Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (4-34 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments -see above for titles.
- MA 16010 - Applied Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16020 - Applied Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- COM 21700 - Science Writing And Presentation
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- CHM 33901 - Biochemistry Laboratory
- BCHM 56100 - General Biochemistry I or
- CHM 33900 - Biochemistry: A Molecular Approach * or
- CHM 53300 - Introductory Biochemistry
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15-16 Credits

Fall 3rd Year

- AGRY 53000 - Advanced Plant Genetics or
- ANSC 51100 - Population Genetics or
- BIOL 43800 - General Microbiology or
- BIOL 44400 - Human Genetics or
- BIOL 47800 - Introduction to Bioinformatics
- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- BIOL 48100 - Eukaryotic Genetics
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

14-15 Credits

Fall 4th Year

- BIOL 44100 - Biology Senior Seminar In Genetics

- STAT 50300 - Statistical Methods For Biology
- Intermediate Biology Selective - Credit Hours: 3.00
- Great Issue Course Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 4th Year

- BIOL 51600 - Molecular Biology Of Cancer or
- BIOL 54100 - Molecular Genetics Of Bacteria or
- BIOL 55001 - Eukaryotic Molecular Biology or
- BIOL 58000 - Evolution or
- BIOL 59500 - Special Assignments -see above for titles.
- Base Lab Requirement - Credit Hours: 2.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

14-16 Credits

Notes

- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student

must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Health and Disease, BS

About the Program

Health and disease is a biology program of study with an emphasis on disease-related upper-level biology courses and general education electives that relate to health. The major provides a rigorous curriculum for students interested in health careers, thus giving the student many career options after graduation.

Health and Disease Website

Health and Disease Major Change (CODO) Requirements

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Degree Requirements

120 Credits Required

Departmental/Program Major Courses (42 credits)

A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (satisfies Science, Technology & Society Selective for core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors

Required Upper Level Biology Coursework (14 credits)

- BIOL 39500 Human Anatomy & Physiology I
- BIOL 39500 Human Anatomy & Physiology II
- BIOL 43800 - General Microbiology (overlaps with Intermediate requirement)
- BIOL 43900 - Laboratory In General Microbiology (overlaps with Base Lab requirement)
- CHM 33901 - Biochemistry Laboratory

Intermediate Biology Selective

- BIOL 43800 - General Microbiology
(overlaps with Upper Level Requirement)

Health And Disease Selective (3 credits)

Choose one; may not overlap with Biology Selectives.

- BIOL 41600 - Viruses And Viral Disease
- BIOL 53700 - Immunobiology
- BIOL 55900 - Endocrinology

Biology Selectives (6 credits)

Choose 6 credits from this list: Biology Selectives List for Health and Disease.

Base Lab Requirement

Click Base Lab Requirements for all Biology majors for additional lists.

(Overlaps with Upper Level Requirement.)

Other Departmental Requirements: (51-79 credits)

Chemistry (13 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦*
ORGANIC CHEMISTRY SELECTIVES - choose one sequence.
 - CHM 25500 - Organic Chemistry ♦
 - CHM 25501 - Organic Chemistry Laboratory
 - CHM 25600 - Organic Chemistry ♦
 - CHM 25601 - Organic Chemistry Laboratory
 - CHM 26505 - Organic Chemistry ♦
 - CHM 26300 - Organic Chemistry Laboratory
 - CHM 26605 - Organic Chemistry ♦
 - CHM 26400 - Organic Chemistry Laboratory
- * Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and CHM 33901.

Chemistry Selective (3-4 credits)

Select one of the following options:

- BCHM 22100 - Analytical Biochemistry
 - BCHM 56100 - General Biochemistry I
 - CHM 32100 - Analytical Chemistry I
 - CHM 33900 - Biochemistry: A Molecular Approach
 - CHM 37200 - Physical Chemistry
 - CHM 37300 - Physical Chemistry
 - CHM 53300 - Introductory Biochemistry
- Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and 33901.

Physics (8 credits)

Choose one sequence.

- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II
- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 17200 - Modern Mechanics
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Calculus (6-10 credits)

Choose one sequence.

- MA 16010 - Applied Calculus I
- MA 16020 - Applied Calculus II
- MA 16100 - Plane Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16500 - Analytic Geometry And Calculus I
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements (21-44 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

- FIRST-YEAR COMPOSITION** – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)
- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
or
 - HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I

Language/Culture Option II

Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with Required Major Courses

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with Required Major Courses

STATISTICS - Credit Hours: 3.00

- STAT 50300 - Statistical Methods For Biology

COMPUTING - Credit Hours: 3.00-4.00

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION^ (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-27 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments (see above for titles)
- MA 16010 - Applied Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16020 - Applied Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function

- COM 21700 - Science Writing And Presentation
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- CHM 33901 - Biochemistry Laboratory
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15-17 Credits

Fall 3rd Year

- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- BIOL 39500 Human Anat Physio I - Credit Hours 4.00
- Biology Selective - Credit Hours: 2.00 - 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 2.00

16-17 Credits

Spring 3rd Year

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- BIOL 39500 Human Anat Physio Credit Hours: 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 3.00

17-18 Credits

Fall 4th Year

- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- STAT 50300 - Statistical Methods For Biology
- Great Issues Course Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

17 Credits

Spring 4th Year

- BIOL 41600 - Viruses And Viral Disease or
- BIOL 53700 - Immunobiology or
- BIOL 55900 - Endocrinology
- Biology Selective 500 Level - Credit Hours: 2.00 - 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective (Pre-professional Selective suggested) - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

16 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Microbiology Honors, BS

About the Program

Microbiology includes the study of viruses, bacteria, and fungi. A student can expect to study topics such as microbial growth, nutrition, metabolism, pathogenesis, morphogenesis, and production of antibiotics. Career opportunities are found in public health, medical laboratories, quality assurance, environmental toxicology, and related areas. A microbiology major provides excellent preparation for advanced study (or direct employment) in biological sciences, education, and many health-related professions.

Microbiology Website

Microbiology Honors Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses (60-66 credits)

A 3.0 or higher graduation index is required to graduate in the Microbiology Honors Curriculum.

A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (satisfies Science, Technology & Society Selective for core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or

- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors

Upper Level Biology Coursework (21 credits)

Required Courses (12 credits)

- CHM 33901 - Biochemistry Laboratory
- BIOL 41600 - Viruses And Viral Disease
- BIOL 43800 - General Microbiology (overlaps with Intermediate Biology requirement)
- BIOL 43900 - Laboratory In General Microbiology (overlaps with Base Lab requirement)
- BIOL 52900 - Bacterial Physiology

Microbiology Selective I (3 credits)

Choose one. May not overlap Microbiology Selective II.

- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 59500 - Special Assignments - Genetics & Omics of Host-Microbe Interactions

Microbiology Selective II (3 credits)

Choose one. May not overlap Microbiology Selective I.

- BIOL 39500 - Special Assignments - (Genes + Proteins = Big Data)
- BIOL 44600 - Molecular Bacterial Pathogenesis
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 53300 - Medical Microbiology
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 54900 - Microbial Ecology
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 59500 - Special Assignments - Genetics Omics Host Microbe
- ABE 59100 - Special Topics - Princ Of System/Synthetic Biol
- FS 59100 - Special Topics - Microbial Genomes Metabolism

Biochemistry Selective (3 credits)

Choose one.

- BCHM 56100 - General Biochemistry I
- CHM 33900 - Biochemistry: A Molecular Approach
- CHM 53300 - Introductory Biochemistry

Intermediate Biology Selective

- BIOL 43800 - General Microbiology (overlaps with Upper Level requirement)

Base Lab Requirement

Select Base Lab Requirements for all Biology majors for additional lists.

(overlaps with Upper Level Requirement)

Honors Curriculum (20-26 credits)

The following two choices MUST be completed:

- CHM 26505 - Organic Chemistry
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory
- MA 26100 - Multivariate Calculus

Microbiology Honors Selective - at least TWO of the following four choices must be completed:

- PHYS 17200 - Modern Mechanics and
- PHYS 27200 - Electric And Magnetic Interactions
- CHM 32100 - Analytical Chemistry I
- CHM 37200 - Physical Chemistry
OR
- CHM 37300 - Physical Chemistry and
- CHM 37400 - Physical Chemistry
- MA 26200 - Linear Algebra And Differential Equations

Other Departmental Requirements: (34-67 credits)

Chemistry Selectives (5 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦*
 - CHM 26505 - Organic Chemistry
 - CHM 26300 - Organic Chemistry Laboratory
 - CHM 26605 - Organic Chemistry
 - CHM 26400 - Organic Chemistry Laboratory
(Organic Chemistry courses overlap Honors Curriculum.)
- * Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and CHM 33901.

Physics Selectives (0-8 credits)

Choose one Physics I option and one Physics II option.

(PHYS 17200 & PHYS 27200 may overlap Honors Curriculum.)

- PHYS 17200 - Modern Mechanics (satisfies Science for core)
- PHYS 23300 - Physics For Life Sciences I (satisfies Science for core)
- PHYS 23400 - Physics For Life Sciences II
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory

- PHYS 27200 - Electric And Magnetic Interactions

Calculus Selectives (8-10 credits)

Choose one Calculus I course and one Calculus II course.

- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core) or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies Quantitative Reasoning for core) or
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements (21-44 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with Required Major Courses

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with Required Major Courses

STATISTICS - Credit Hours: 3.00

- STAT 50300 - Statistical Methods For Biology
- COMPUTING** - Credit Hours: 3.00-4.00
- CS 17700 - Programming With Multimedia Objects ♦ or
 - CS 15900 - C Programming ♦ or
 - CS 18000 - Problem Solving And Object-Oriented Programming ♦
- GENERAL EDUCATION[^]** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

- General Education Option I
 - General Education Option II
 - General Education Option III
- ^ Labeled as a Science Core Selection in the four year plan of study
- *Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-46 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments (see titles above)
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00

16 - 17 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- CHM 26505 - Organic Chemistry
- CHM 26300 - Organic Chemistry Laboratory
- MA 26100 - Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00

16 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- CHM 26605 - Organic Chemistry
- CHM 26400 - Organic Chemistry Laboratory
- BIOL 28600 - Introduction To Ecology And Evolution
- Science Core Selection - Credit Hours: 3.00 - 4.00

14 Credits

Fall 3rd Year

- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- COM 21700 - Science Writing And Presentation
- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- Science Core Selection - Credit Hours: 3.00 - 4.00

15 Credits

Spring 3rd Year

- CHM 33901 - Biochemistry Laboratory
- BIOL 41600 - Viruses And Viral Disease
- BCHM 56100 - General Biochemistry I or
- CHM 33900 - Biochemistry: A Molecular Approach or
- CHM 53300 - Introductory Biochemistry
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory or
- PHYS 27200 - Electric And Magnetic Interactions
- Science Core Selection - Credit Hours: 3.00 - 4.00

14-15 Credits

Fall 4th Year

- BIOL 54100 - Molecular Genetics Of Bacteria or
- BIOL 59500 - Special Assignments - Genetics & Omics of Host-Microbe Interactions
- Microbiology Honors Selective - Credit Hours: 4.00
- Microbiology Selective II - Credit Hours: 3.00
- Great Issue Course Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 4th Year

- BIOL 52900 - Bacterial Physiology
- STAT 50300 - Statistical Methods For Biology
- Microbiology Honors Selective - Credit Hours: 4.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Notes

- 3.0 Graduation GPA required for Microbiology Honors major.
- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Microbiology, BS

About the Program

Microbiology includes the study of viruses, bacteria, and fungi. A student can expect to study topics such as microbial growth, nutrition, metabolism, pathogenesis, morphogenesis, and production of antibiotics. Career opportunities are found in public health, medical laboratories, quality assurance, environmental toxicology, and related areas. A microbiology major provides excellent preparation for advanced study (or direct employment) in biological sciences, education, and many health-related professions.

[Microbiology Website](#)

[Microbiology Major Change \(CODO\) Requirements](#)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (40 credits)

A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (satisfies Science, Technology & Society Selective for core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr 1 Bio Lab Phges Flds-Honors

Upper Level Biology Coursework (21 credits)

Required Courses (12 credits)

- CHM 33901 - Biochemistry Laboratory
- BIOL 41600 - Viruses And Viral Disease
- BIOL 43800 - General Microbiology (overlaps with Intermediate Biology Requirement)
- BIOL 43900 - Laboratory In General Microbiology (overlaps with Base Lab Requirement)
- BIOL 52900 - Bacterial Physiology

Microbiology Selective I (3 credits)

Choose one. May not overlap Microbiology Selective II.

- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 59500 - Special Assignments - Genetics & Omics of Host-Microbe Interactions

Microbiology Selective II (3 credits)

Choose one. May not overlap with Microbiology Selective I.

- BIOL 39500 - Special Assignments - (Genes + Proteins = Big Data)
- BIOL 44600 - Molecular Bacterial Pathogenesis
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 53300 - Medical Microbiology
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 54900 - Microbial Ecology
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 59500 - Special Assignments - Genetics Omics Host Microbe
- ABE 59100 - Special Topics - Princ Of System/Synthetic Biol

- FS 59100 - Special Topics - Microbial Genomes Metabolism

Biochemistry Selective (3 credits)

Choose one.

- BCHM 56100 - General Biochemistry I
- CHM 33900 - Biochemistry: A Molecular Approach
- CHM 53300 - Introductory Biochemistry

Intermediate Biology Selective

- BIOL 43800 - General Microbiology (overlaps with Upper Level requirement)

Base Lab Requirement

Select Base Lab Requirements for all Biology majors for additional lists.

(overlaps with Upper Level requirement)

Other Departmental (48-75 credits)

Chemistry Selectives (13 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦*
ORGANIC CHEMISTRY SELECTIVES - Choose one sequence.
 - CHM 25500 - Organic Chemistry ♦
 - CHM 25501 - Organic Chemistry Laboratory
 - CHM 25600 - Organic Chemistry ♦
 - CHM 25601 - Organic Chemistry Laboratory
 - CHM 26505 - Organic Chemistry ♦
 - CHM 26300 - Organic Chemistry Laboratory
 - CHM 26400 - Organic Chemistry Laboratory ♦
 - CHM 26605 - Organic Chemistry
- * Students who take CHM 12901 for General Chemistry must complete both CHM 33900 and CHM 33901.

Physics Selectives (8 credits)

Choose one sequence.

- PHYS 23300 - Physics For Life Sciences I (satisfies Science Selective for core)
- PHYS 23400 - Physics For Life Sciences II
- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core)
- PHYS 27200 - Electric And Magnetic Interactions
- PHYS 17200 - Modern Mechanics (satisfies Science for core)
- PHYS 24100 - Electricity And Optics
- PHYS 25200 - Electricity And Optics Laboratory

Calculus Selectives (6-10 credits)

Choose one sequence.

- MA 16010 - Applied Calculus I (satisfies Quantitative Reasoning for core)
- MA 16020 - Applied Calculus II
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core)
- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core)
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements (21-44 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

- **FIRST-YEAR COMPOSITION** – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)
 - ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- **TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)
- **TEAM-BUILDING & COLLABORATION*** - Credit Hours: 0.00 - 3.00
- **LANGUAGE & CULTURE^*** - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)
 - Language/Culture Option I
 - Language/Culture Option II
 - Language/Culture Option III
- **GREAT ISSUES IN SCIENCE** - Credit Hours: 3.00
- **MULTIDISCIPLINARY EXPERIENCE^*** - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)
- **LABORATORY SCIENCE** - Met with Required Major Courses
- **MATHEMATICS** - Met with Required Major Courses
- **STATISTICS** - Credit Hours: 3.00
- STAT 50300 - Statistical Methods For Biology
- **COMPUTING** - Credit Hours: 3.00-4.00
 - CS 17700 - Programming With Multimedia Objects ♦ or
 - CS 15900 - C Programming ♦ or
 - CS 18000 - Problem Solving And Object-Oriented Programming ♦
- **GENERAL EDUCATION^** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00
 - General Education Option I

- General Education Option II
 - General Education Option III
- ^ Labeled as a Science Core Selection in the four year plan of study
- *Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (5-32 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments (see titles above)
- MA 16010 - Applied Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16020 - Applied Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- COM 21700 - Science Writing And Presentation
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- CHM 33901 - Biochemistry Laboratory
- BCHM 56100 - General Biochemistry I or
- CHM 33900 - Biochemistry: A Molecular Approach or
- CHM 53300 - Introductory Biochemistry
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15-16 Credits

Fall 3rd Year

- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

- BIOL 41600 - Viruses And Viral Disease
- BIOL 52900 - Bacterial Physiology
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

14 Credits

Fall 4th Year

- BIOL 54100 - Molecular Genetics Of Bacteria or
- BIOL 59500 - Special Assignments - Genetics & Omics of Host-Microbe Interactions
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Great Issues In Science - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Spring 4th Year

- STAT 50300 - Statistical Methods For Biology
- Microbiology Selective II - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Neurobiology and Physiology, BS

About the Program

Physiology is the study of the functions of living organisms and of the organ and tissue systems of which they are composed. The goal of physiology is to understand, in terms of physical and chemical principles, the mechanisms that operate in living organisms from the subcellular level to the level of the whole animal, with an emphasis on how these mechanisms are integrated to produce a viable organism.

Neurobiology is the study of the structure, function, and development of the nervous system, and originated, in part, as a subdiscipline of physiology. In recent years, neurobiology has become one of the most rapidly changing and exciting areas of biology. A neurobiology and physiology major is excellent preparation for careers in education, research, industry, medicine, veterinary medicine, and other professions.

Neurobiology and Physiology Website

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (38-41 credits)

A minimum 2.0 average in all biology courses is required for this major.

Each student must take at least one 500-level BIOL course other than BIOL 54200 or a BIOL 59500 lab.

Biology Core (19 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦ (satisfies Science, Technology & Society Selective for core)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors

Upper Level Biology Coursework (10-11 Credits)

- CHM 33901 - Biochemistry Laboratory
Neurobiology & Physiology Selectives - Choose 2: (6 credits)
- BIOL 43200 - Reproductive Physiology
- BIOL 43600 - Neurobiology
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 55900 - Endocrinology
- BIOL 56200 - Neural Systems
- BIOL 59500 - Special Assignments
 - Neural Mech Health & Disease
 - Neurobiol Learning & Memory
- Chemistry Selective - Choose one: (3-4 credits)
(May not overlap with Biology Selective.)
- BCHM 56100 - General Biochemistry I
- CHM 33900 - Biochemistry: A Molecular Approach
- CHM 37200 - Physical Chemistry
- CHM 37300 - Physical Chemistry
- CHM 53300 - Introductory Biochemistry

Intermediate Biology Selective (4 credits)

- BIOL 32800 - Principles Of Physiology

Biology Selective (3 credits)

Choose 3 credits from this list: Biology Supplemental Selectives for Neurobiology and Physiology.

Base Lab Requirement (2-4 credits)

Select Base Lab Requirements for all Biology majors for additional lists.

Other Departmental Requirements: (48-75 credits)

Chemistry Selectives (13 credits)

- CHM 12901 - General Chemistry With A Biological Focus ♦*

ORGANIC CHEMISTRY SELECTIVES - choose one sequence.

- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory

* Students who begin with CHM 12901 must complete both CHM 33900 and CHM 33901.

Physics Selectives (8 credits)

Choose one Physics I and one Physics II course.

- PHYS 23300 - Physics For Life Sciences I (satisfies Science for core) or
- PHYS 17200 - Modern Mechanics (satisfies Science for core)
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 27200 - Electric And Magnetic Interactions

Calculus Selectives (6-10 credits)

Choose one Calculus I course and one Calculus II course.

- MA 16010 - Applied Calculus I (satisfies Quantitative Reasoning for core) or
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core) or
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core)
- MA 16020 - Applied Calculus II or

- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Additional Other Requirements (21-44 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Met with Required Major Courses

MATHEMATICS (satisfies Quantitative Reasoning for University Core) - Met with Required Major Courses

STATISTICS - Credit Hours: 3.00

- STAT 50300 - Statistical Methods For Biology
- COMPUTING** - Credit Hours: 3.00-4.00
- CS 17700 - Programming With Multimedia Objects ♦ or
 - CS 15900 - C Programming ♦ or
 - CS 18000 - Problem Solving And Object-Oriented Programming ♦
- GENERAL EDUCATION[^]** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00
- General Education Option I
General Education Option II
General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (4-34 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior ♦
- CHM 12901 - General Chemistry With A Biological Focus ♦
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments (see above for titles)
- MA 16010 - Applied Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ♦
- CHM 25500 - Organic Chemistry ♦
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry ♦
- CHM 26300 - Organic Chemistry Laboratory
- ENGL 10600 - First-Year Composition or

- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16020 - Applied Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ♦
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- COM 21700 - Science Writing And Presentation
- CHM 25600 - Organic Chemistry ♦
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry ♦
- CHM 26400 - Organic Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00 - 4.00

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology ♦
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 28600 - Introduction To Ecology And Evolution
- CHM 33901 - Biochemistry Laboratory
- BCHM 56100 - General Biochemistry I or
- CHM 33900 - Biochemistry: A Molecular Approach or
- CHM 37200 - Physical Chemistry or
- CHM 37300 - Physical Chemistry or
- CHM 53300 - Introductory Biochemistry
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15-17 Credits

Fall 3rd Year

- PHYS 17200 - Modern Mechanics or
- PHYS 23300 - Physics For Life Sciences I
- Neurobiology & Physiology Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00

- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- BIOL 32800 - Principles Of Physiology
- STAT 50300 - Statistical Methods For Biology
- PHYS 23400 - Physics For Life Sciences II or
- PHYS 27200 - Electric And Magnetic Interactions
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

15 Credits

Fall 4th Year

- Biology Selective - Credit Hours: 3.00
- Base Lab Requirement - Credit Hours: 2.00 - 4.00
- Great Issues Course Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

14-16 Credits

Spring 4th Year

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Neurobiology & Physiology Selective 500 Level - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Note

- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Biological Sciences Minor

Requirements for Minor (16-20 credits)

Part I Courses (7-8 credits)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- AND
- ABE 22600 - Biotechnology Laboratory I or
- BIOL 13500 - First Year Biology Laboratory or
- BIOL 19500 - Special Assignments
 - Diet, Dis & Immune Sys-Honors
 - Yr I Bio Lab Disea Ecol-Honors
 - Yr I Bio Lab Phges Flds-Honors
- OR
- BIOL 11000 - Fundamentals Of Biology I and

- BIOL 11100 - Fundamentals Of Biology II (AP credit for BIOL 11000-BIOL 11100 is acceptable)

Part II Courses (6 credits)

- BIOL 23100 - Biology III: Cell Structure And Function or
- BIOL 23000 - Biology Of The Living Cell
- BIOL 24100 - Biology IV: Genetics And Molecular Biology or
- AGRY 32000 - Genetics

Part III Courses (2-4 credits)

- BIOL 28600 - Introduction To Ecology And Evolution *
- BIOL 32800 - Principles Of Physiology *
- BIOL 36700 - Principles Of Development *
- BIOL 39500 - Special Assignments
 - Macromolecules*
 - Exp Dsgn&Quant Analys I-Honors
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43200 - Reproductive Physiology
- BIOL 43600 - Neurobiology
- BIOL 43800 - General Microbiology
- BIOL 44400 - Human Genetics
- BIOL 44600 - Molecular Bacterial Pathogenesis
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 48100 - Eukaryotic Genetics
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 51100 - Introduction To X-Ray Crystallography
- BIOL 49500 - Special Assignments
 - Data Science: Good Versus Bad Data
 - Med Immunology Hlth & Disease
- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 53300 - Medical Microbiology
- BIOL 53601 - Biological And Structural Aspects Of Drug Design And Action
- BIOL 53700 - Immunobiology
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 55900 - Endocrinology
- BIOL 56200 - Neural Systems
- BIOL 56310 - Protein Bioinformatics
- BIOL 58000 - Evolution
- BIOL 58210 - Ecological Statistics
- BIOL 58705 - Animal Communication
- BIOL 59200 - The Evolution Of Behavior
- BIOL 59500 - Special Assignments
 - Disease Ecology
 - Exp Dsgn&Quant Analys I-Honors

- Epigenetics In Human Disease
- Meth Meas Biophys Chem
- Neural Mech Health & Disease
- Neurobiol Learning & Memory
- Pathwys Human Health & Disease
- Practical Bio Comput

Part IV Laboratory Course (1-4 credits)

- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 32800 - Principles Of Physiology *
- BIOL 36701 - Principles Of Development Lab *
- BIOL 39500 - Special Assignments - Macromolecules*
- AGRY 32100 - Genetics Laboratory

Notes

- All classes for this minor must be taken at Purdue University.
- At least one-half of these courses must be taken at the West Lafayette campus.
- A 2.0 or higher average is required in courses used to complete the minor.
- * BIOL 32800 or BIOL 39500 alone or BIOL 36700 and BIOL 36701 will meet the requirements for Parts III and IV.

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Base Lab Requirements for all Biology majors

Base Lab Requirement

Each student will select an option from the Required Course list. Students must also satisfy Objectives A and B below, which can be met by courses, research, or a combination of the two.

BIOL research (BIOL 49400 or BIOL 49900) can be used to satisfy Objectives A and/or B below. The Research Mentor must approve research to meet one or both objectives. Consult with your academic advisor for the forms used to obtain Research Mentor approval for each objective.

A minimum of four credits of BIOL 49400 or BIOL 49900 must be earned in addition to research director approval.

Students who complete a Biology Honors Thesis automatically meet Objectives A and B.

Microbiology, Microbiology Honors, and Health & Disease majors must use BIOL 43900 to meet this requirement.

Ecology, Evolution, and Environmental Biology majors must use BIOL 59500 Laboratory in Ecology to meet this requirement.

Required Course

All students must take one of the following courses:

- BIOL 43900 - Laboratory In General Microbiology
- BIOL 44202 - Animal Physiology
- BIOL 44205 - Introduction To LabVIEW
- BIOL 44207 - Exploration Of Protein Structure
- BIOL 44211 - Laboratory In Anatomy And Physiology
- BIOL 44212 - Microscopy And Cell Biology
- BIOL 59100 - Field Ecology
- BIOL 59500 - Special Assignments
 - CryoEM 3D Reconstruction or Laboratory in Ecology

Objective A - Research planning, literature review, writing

All students must meet Objective A with research, or take one of the following courses.

- BIOL 39500 - Special Assignments
 - Exp Dsgn&Quant Analys I-Honors
- BIOL 43900 - Laboratory In General Microbiology
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 49500 - Special Assignments
 - Data Science: Good Versus Bad Data
- BIOL 58210 - Ecological Statistics
- BIOL 59100 - Field Ecology
- BIOL 59500 - Special Assignments
 - Exp Dsgn & Quant Analys I-Honors
 - Laboratory in Ecology
 - Neural Mech in Hlth Disease
 - Theory of Molecular Methods

Objective B - Analysis, simulation, and presentation

All students must meet Objective B with research, or take one of the following courses.

- BIOL 39500 - Special Assignments
 - Exp Dsgn&Quant Analys I-Honors
- BIOL 43900 - Laboratory In General Microbiology
- BIOL 44202 - Animal Physiology
- BIOL 44205 - Introduction To LabVIEW
- BIOL 44212 - Microscopy And Cell Biology

- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 49500 - Special Assignments
 - Data Science: Good Versus Bad
- BIOL 54200 - Modular Upper-Division Laboratory Course (Neurophysiology)
- BIOL 58210 - Ecological Statistics
- BIOL 59100 - Field Ecology
- BIOL 59500 - Special Assignments
 - CryoEM 3D Reconstruction
 - Data Analysis in Neurosci
 - Exp Dsgn&Quant Analys I-Honors
 - Laboratory in Ecology
 - Neural Mech in Hlth Disease
 - Theory of Molecular Methods

Biochemistry Biology Selectives

Biology Selectives - Choose One:

- BIOL 41600 - Viruses And Viral Disease
- BIOL 43800 - General Microbiology
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 48100 - Eukaryotic Genetics
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 52900 - Bacterial Physiology
- BIOL 53700 - Immunobiology
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 59500 - Special Assignments
 - Epigenetics in Human Disease
 - Genetics Omics Host Microbe
 - Intro to X-Ray Crystallography
 - Theory of Molecular Methods
- BCHM 43400 - Medical Topics In Biochemistry

Biology Selectives List for Biochemistry

Select one of these courses:

Biology Selectives List for Biochemistry

- BIOL 41600 - Viruses And Viral Disease
- BIOL 43800 - General Microbiology
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 48100 - Eukaryotic Genetics
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 52900 - Bacterial Physiology

- BIOL 53700 - Immunobiology
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 59500 - Special Assignments
 - Epigenetics in Human Disease
 - Genetics Omics Host Microbe
 - Intro to X-Ray Crystallography
 - Theory of Molecular Methods
- BCHM 43400 - Medical Topics In Biochemistry

Biology Selectives List for Biology (12 credits)

- At least **one** Group A Selective
- At least **one** Group B Selective
- At least **one** option from the Base Lab Requirements for all Biology majors
- At least **one** 500-level course from Group A Selectives or Group B Selectives
- Overlap (A,B,50000 level,Base Lab) is allowed.

Group A Selective (at least 3 credits)

- BIOL 39500 - Special Assignments
 - Genes + Proteins = Big Data
 - Macromolecules
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43600 - Neurobiology
- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- BIOL 44400 - Human Genetics
- BIOL 44600 - Molecular Bacterial Pathogenesis
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 48100 - Eukaryotic Genetics
- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 52900 - Bacterial Physiology
- BIOL 53300 - Medical Microbiology
- BIOL 53601 - Biological And Structural Aspects Of Drug Design And Action
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 54900 - Microbial Ecology
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 56200 - Neural Systems
- BIOL 56310 - Protein Bioinformatics
- BIOL 59500 - Special Assignments
 - Cell Biology Of Plants

- Epigenetics in Human Disease
- Genetics Omics Host Microbe
- Intro to X-Ray Crystallography
- Meth Meas Biophys Chem
- Neural Mech Health & Disease
- Neurobiol Learning & Memory
- Pathwys Human Health & Disease
- Practical Bio Comput
- Theory of Molecular Methods
- BCHM 43400 - Medical Topics In Biochemistry
- BCHM 56100 - General Biochemistry I
- BCHM 56200 - General Biochemistry II
- CHM 33900 - Biochemistry: A Molecular Approach
- CHM 53300 - Introductory Biochemistry

Group B Selective (at least 3 credits)

- BIOL 32800 - Principles Of Physiology
- BIOL 36700 - Principles Of Development
- BIOL 39500 - Special Assignments
 - Exp Dsgn&Quant Analys I-Honors
- BIOL 43200 - Reproductive Physiology
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 49500 - Special Assignments
 - Data Science: Good Versus Bad Data
 - Med Immunology Hlth & Disease
- BIOL 53700 - Immunobiology
- BIOL 55900 - Endocrinology
- BIOL 58000 - Evolution
- BIOL 58210 - Ecological Statistics
- BIOL 58705 - Animal Communication
- BIOL 59100 - Field Ecology
- BIOL 59200 - The Evolution Of Behavior
- BIOL 59500 - Special Assignments
 - Disease Ecology
 - Ecology
- HORT 30100 - Plant Physiology

BIOL 50000-level (at least 3 credits)

Select One BIOL 50000-level course from Group A or Group B.

Biology Selectives List for Cell, Molecular and Developmental Biology

Biology Selectives List for Cell, Molecular and Developmental Biology

Select three credits:

- BIOL 39500 - Special Assignments
 - Genes + Proteins = Big Data
 - Macromolecules
 - Exp Dsgn&Quant Analys I-Honors
- BIOL 41600 - Viruses And Viral Disease
- BIOL 43200 - Reproductive Physiology
- BIOL 43600 - Neurobiology
- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- BIOL 44400 - Human Genetics
- BIOL 44600 - Molecular Bacterial Pathogenesis
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 48100 - Eukaryotic Genetics
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 49500 - Special Assignments
 - Data Science: Good Versus Bad Data
 - Med Immunology Hlth & Disease
- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 52900 - Bacterial Physiology
- BIOL 53300 - Medical Microbiology
- BIOL 53601 - Biological And Structural Aspects Of Drug Design And Action
- BIOL 53700 - Immunobiology
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 54900 - Microbial Ecology
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 55900 - Endocrinology
- BIOL 56200 - Neural Systems
- BIOL 56310 - Protein Bioinformatics
- BIOL 58000 - Evolution
- BIOL 58210 - Ecological Statistics
- BIOL 58705 - Animal Communication
- BIOL 59100 - Field Ecology
- BIOL 59200 - The Evolution Of Behavior
- BIOL 59500 - Special Assignments
 - Cell Biology Of Plants
 - Disease Ecology
 - Ecology
 - Epigenetics in Human Disease
 - Genetics Omics Host Microbe
 - Intro to X-Ray Crystallography
 - Meth Meas Biophys Chem
 - Neural Mech Health & Disease
 - Neurobiol Learning & Memory
 - Pathwys Human Health & Disease
 - Practical Bio Comput
 - Theory of Molecular Methods

- BCHM 43400 - Medical Topics In Biochemistry

Biology Selectives List for Ecology, Evolution and Environmental Biology

Select 1 course from the following list:

Biology Selectives List for Ecology, Evolution and Environmental Biology

- AGEC 52500 - Environmental Policy Analysis
- ANTH 53500 - Foundations Of Biological Anthropology
- ANTH 53600 - Primate Ecology
- BIOL 39500 - Special Assignments
- Exp Dsgn&Quant Analys I-Honors
- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- BIOL 44400 - Human Genetics
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 49500 - Special Assignments
-Data Science: Good Versus Bad Data
- BIOL 58210 - Ecological Statistics
- BIOL 58705 - Animal Communication
- BIOL 59100 - Field Ecology
- BIOL 59200 - The Evolution Of Behavior
- BIOL 59500 - Special Assignments
- Disease Ecology
- BTNY 30200 - Plant Ecology
- BTNY 30500 - Plant Evolution And Taxonomy
- BTNY 56100 - Survey Of Mathematical Biology
- CE 35000 - Introduction To Environmental And Ecological Engineering
- CE 35200 - Biological Principles Of Environmental Engineering
- FNR 44700 - Vertebrate Population Dynamics
- FNR 48800 - Global Environmental Issues
- POL 52300 - Environmental Politics And Public Policy

Biology Selectives List for Health and Disease

Biology Selectives List for Health and Disease

Select six credits:

- BIOL 32800 - Principles Of Physiology
- BIOL 36700 - Principles Of Development
- BIOL 36701 - Principles Of Development Lab

- BIOL 39500 - Special Assignments
 - Exp Dsgn&Quant Analys I-Honors
 - Genes + Proteins = Big Data
 - Macromolecules
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43200 - Reproductive Physiology
- BIOL 43600 - Neurobiology
- BIOL 44400 - Human Genetics
- BIOL 44600 - Molecular Bacterial Pathogenesis
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 48100 - Eukaryotic Genetics
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 49400 - Biology Research - Maximum 3 credits of research (BIOL 49400 or BIOL 49900)
- BIOL 49500 - Special Assignments
 - Data Science: Good Versus Bad Data
 - Med Immunology Hlth & Disease
- BIOL 49900 - Biology Honors Thesis Research - Maximum 3 credits of research (BIOL 49400 or BIOL 49900)
- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 52900 - Bacterial Physiology
- BIOL 53300 - Medical Microbiology
- BIOL 53601 - Biological And Structural Aspects Of Drug Design And Action
- BIOL 53700 - Immunobiology
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 54200 - Modular Upper-Division Laboratory Course
- BIOL 54900 - Microbial Ecology
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 55900 - Endocrinology
- BIOL 56200 - Neural Systems
- BIOL 56310 - Protein Bioinformatics
- BIOL 58000 - Evolution
- BIOL 58210 - Ecological Statistics
- BIOL 58705 - Animal Communication
- BIOL 59100 - Field Ecology
- BIOL 59200 - The Evolution Of Behavior
- BIOL 59500 - Special Assignments
 - Cell Biology Of Plants
 - Disease Ecology
 - Ecology
 - Epigenetics in Human Disease
 - Genetics Omics Host Microbe
 - Intro to X-Ray Crystallography
 - Meth Meas Biophys Chem
 - Neural Mech Health & Disease
 - Neurobiol Learning & Memory

- Pathwys Human Health & Disease
- Practical Bio Comput
- Theory of Molecular Methods
- BCHM 43400 - Medical Topics In Biochemistry
- HORT 30100 - Plant Physiology

Biology Supplemental Selectives for Genetics

Biology Selectives (6 credits)

Choose one:

- AGRY 53000 - Advanced Plant Genetics
- ANSC 51100 - Population Genetics
- BIOL 43800 - General Microbiology
- BIOL 44400 - Human Genetics
- BIOL 47800 - Introduction to Bioinformatics

And one of the following:

- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 58000 - Evolution
- BIOL 59500 - Special Assignments
 - Epigenetics in Human Disease
 - Genetics Omics Host Microbe
 - Pathwys Human Health & Disease
 - Theory of Molecular Methods

Biology Supplemental Selectives for Neurobiology and Physiology

- May overlap with Base Lab requirement.
- May not overlap with any other biology requirement.

Biology Selectives (3 credits)

- BIOL 36700 - Principles Of Development
- BIOL 36701 - Principles Of Development Lab
- BIOL 39500 - Special Assignments
 - Genes + Proteins = Big Data
 - Exp Dsgn & Quant Analys I - Honors
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43200 - Reproductive Physiology
- BIOL 43600 - Neurobiology

- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- BIOL 44400 - Human Genetics
- BIOL 44600 - Molecular Bacterial Pathogenesis
- BIOL 47800 - Introduction to Bioinformatics
- BIOL 48100 - Eukaryotic Genetics
- BIOL 48300 - Great Issues: Environmental And Conservation Biology
- BIOL 49500 - Special Assignments
 - Data Science: Good Versus Bad Data
 - Med Immunology Hlth & Disease
- BIOL 51600 - Molecular Biology Of Cancer
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 52900 - Bacterial Physiology
- BIOL 53300 - Medical Microbiology
- BIOL 53601 - Biological And Structural Aspects Of Drug Design And Action
- BIOL 53700 - Immunobiology
- BIOL 53800 - Molecular, Cellular, And Developmental Neurobiology
- BIOL 54100 - Molecular Genetics Of Bacteria
- BIOL 54900 - Microbial Ecology
- BIOL 55001 - Eukaryotic Molecular Biology
- BIOL 55900 - Endocrinology
- BIOL 56200 - Neural Systems
- BIOL 56310 - Protein Bioinformatics
- BIOL 58000 - Evolution
- BIOL 58210 - Ecological Statistics
- BIOL 58705 - Animal Communication
- BIOL 59100 - Field Ecology
- BIOL 59200 - The Evolution Of Behavior
- BIOL 59500 - Special Assignments
 - Cell Biology Of Plants
 - Disease Ecology
 - Ecology
 - Epigenetics in Human Disease
 - Genetics Omics Host Microbe
 - Intro to X-Ray Crystallography
 - Meth Meas Biophys Chem
 - Neural Mech Health & Disease
 - Neurobiol Learning & Memory
 - Pathwys Human Health & Disease
 - Practical Bio Comput
 - Theory of Molecular Methods
- BCHM 43400 - Medical Topics In Biochemistry

Intermediate Selectives for all Biology majors

Intermediate Biology Selectives

Depending on the specific major within the Department of Biological Sciences, the Intermediate Biology Selective will vary:

Biology majors may choose any of the eight options.

Biochemistry (Biology) majors must choose BIOL 39500, Macromolecules, for this requirement.

Biochemistry Honors majors must choose BIOL 39500, Macromolecules, for this requirement.

Cell, Molecular, and Developmental Biology majors must choose one of these three options: 1) BIOL 36700, Principles of Development and BIOL 36701, Principles of Development Lab, or 2) BIOL 41500, Introduction to Molecular Biology, or 3) BIOL 42000, Eukaryotic Cell Biology.

Ecology, Evolution, and Environmental Biology majors may choose any of the eight options.

Genetics majors may choose from seven of the eight options. They may NOT choose BIOL 43800, General Microbiology.

Health & Disease majors must choose BIOL 43800, General Microbiology.

Microbiology majors must choose BIOL 43800, General Microbiology.

Microbiology Honors majors must choose BIOL 43800, General Microbiology.

Neurobiology & Physiology majors must choose BIOL 32800, Principles of Physiology.

Course Options

- BIOL 32800 - Principles Of Physiology
- BIOL 36700 - Principles Of Development and
- BIOL 36701 - Principles Of Development Lab
- BIOL 39500 - Special Assignments - (Macromolecules)
- BIOL 41500 - Introduction To Molecular Biology
- BIOL 41600 - Viruses And Viral Disease
- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 43600 - Neurobiology
- BIOL 43800 - General Microbiology

Department of Chemistry

Overview

The Department of Chemistry is located centrally on the Purdue campus and is housed in the *Richard B. Wetherill Laboratories(WTHR)* and the *Herbert C. Brown Laboratory of Chemistry(BRWN)*. Students, faculty, and staff have access to world class facilities both for teaching and research.

Our Mission | Our Vision

The Department is home to:

- 52 faculty members
- 350 undergraduate students
- 310 graduate students
- 90 support personnel

In the 2013 Academic Ranking of World Universities (Shanghai Rankings), our departments ranked 20th world-wide and 13th nationally.

The Department of Chemistry offers a Bachelor of Science in Chemistry (ACS accredited), a Bachelor of Science and a minor in Chemistry. The department also offers an Honors program and the opportunity to participate in Cooperative Education Program.

Honors Program

The Department of Chemistry has an honors program for superior students. Participation can begin during the sophomore year, and a student will be assigned to advanced sections in chemistry courses. During the junior and senior years, a student engages in undergraduate research, participates in research seminars and completes honor courses. The undergraduate research experience (CHM 49900 or equivalent) is to be a minimum of six credits. In addition, the student must write an honor's thesis based on the CHM 49900 work. The faculty advisor will read the thesis and the student will give a presentation of the research.

Admission to the chemistry honors program must be made by the end of the junior year. The honors student is expected to achieve and maintain a scholastic graduation index of at least 3.40. Students fulfilling requirements of the chemistry honors program will be graduated "with honors in chemistry". The honors program has been approved by the Royal Society of Chemistry.

Cooperative Education Program

The Department of Chemistry participates in the Cooperative Education Program. This program requires five years and involves the option of 3 or 5 work period sessions, either semester or summer modules, with a cooperating company in the chemical industry. As a student gains experience, she or he is given increasingly responsible industrial assignments and receives more compensation. A student can enter the program meeting the following requirements: has completed two semesters of chemistry and has a chemistry index of 2.80. Information is available from the Coordinator of Cooperative Education in the Department of Chemistry. Check with your advisor for further information.

Faculty

Department of Chemistry Website

Contact Information

Head: Professor Chris Hrycyna

Graduate Admissions: Dr. Stephen Hoffmann, Assistant Head

Undergraduate Information: Dr. Beatriz Cisneros

Webmaster: webmaster@chem.purdue.edu

Mailing address:

Department of Chemistry

560 Oval Drive

West Lafayette, Indiana 47907-2084

Telephone (765) 494-5200 **FAX** (765) 494-0239

Graduate Information

For Graduate Information please see Chemistry Graduate Program Information.

Baccalaureate

Biochemistry (Chemistry), BSCH

About the Program

Biochemists study the chemical basis of life. Some of the major problems include the transfer of genetic information to biological structures, the conversion of nutrients into cell constituents and their utilization as sources of energy, the storage of memory, and the chemical nature of neural processes. Furthermore, biochemists are interested in the chemical details of important processes such as photosynthesis, blood clotting, fertilization, and other functions that may be unique to certain organisms. This program includes six credits of undergraduate research in a wide range of fields, including drug discovery, nano-medicine, protein structure determination, development and application of novel chemical tools to dissect different biological processes.

By concentrating advanced elective credit hours in biochemistry and by taking biology courses, this degree provides an excellent preparation for medical, dental, or veterinary schools. This program would particularly benefit those planning careers in medical research.

Biochemistry Website

Chemistry Department Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete

minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses (81-86 credits)

Required Major Courses (48-50 credits)

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- CHM 24100 - Introductory Inorganic Chemistry
- CHM 26505 - Organic Chemistry ♦
- CHM 26605 - Organic Chemistry
- CHM 33901 - Biochemistry Laboratory
- CHM 34200 - Inorganic Chemistry
- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- CHM 49900 - Special Assignments - repeated for a total of 5 credits
- CHM 12500 - Introduction To Chemistry I ♦ or
- CHM 11500 - General Chemistry ♦ (satisfies Science for core)
- CHM 12600 - Introduction To Chemistry II or
- CHM 11600 - General Chemistry

- CHM 26500 - Organic Chemistry Laboratory or
- CHM 26700 - Organic Chemistry Laboratory Honors
- CHM 26600 - Organic Chemistry Laboratory or
- CHM 26800 - Organic Chemistry Laboratory Honors
- CHM 32100 - Analytical Chemistry I or
- CHM 32300 - Analytical Chemistry I Honors

Seminars (3 credits)

- CHM 19400 - Freshman Chemistry Orientation
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 49400 - Junior-Senior Chemistry Seminar

Genetics Option (4-5 credits)

Choose one sequence.

- AGRY 32000 - Genetics
- AGRY 32100 - Genetics Laboratory
- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology

Biochemistry Option (3 credits)

Choose one.

- BCHM 56100 - General Biochemistry I
- CHM 43300 - Biochemistry
- CHM 53300 - Introductory Biochemistry

Biotechnology or Biochemistry II Option (3 credits)

Choose one.

- BCHM 56200 - General Biochemistry II
- CHM 43800 - Introduction To Molecular Biotechnology
- CHM 53800 - Molecular Biotechnology

Required Calculus and Physics Courses (20-22 credits)

- MA 16100 - Plane Analytic Geometry And Calculus I ♦ or
- MA 16500 - Analytic Geometry And Calculus I ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- MA 26100 - Multivariate Calculus
- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions or

- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory

Other Departmental /Program Course Requirements (21-57 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)
- TEAM-BUILDING & COLLABORATION*** - Credit Hours: 0.00 - 3.00 (fulfilled by PHYS 17200 in major)

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Credit Hours: 0.00-8.00 (fulfilled by Required Major Courses)

MATHEMATICS - Credit Hours: 0.00-5.00 (fulfilled by Required Major Courses)

STATISTICS - Credit hours 3.00

- STAT 30100 - Elementary Statistical Methods or
 - STAT 35000 - Introduction To Statistics
- COMPUTING** - Credit Hours: 3.00-4.00
- CS 15900 - C Programming or
 - CS 17700 - Programming With Multimedia Objects
- GENERAL EDUCATION[^]** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00
- General Education Option I
General Education Option II
General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-18 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- CHM 19400 - Freshman Chemistry Orientation
- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ or
- MA 16500 - Analytic Geometry And Calculus I ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- Science Core Selection - Credit Hours: 3.00-4.00

15-19 Credits

Spring 1st Year

- CHM 11600 - General Chemistry or
- CHM 12600 - Introduction To Chemistry II
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

14-16 Credits

Fall 2nd Year

- CHM 26505 - Organic Chemistry ♦

- MA 26100 - Multivariate Calculus
- PHYS 17200 - Modern Mechanics
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 26500 - Organic Chemistry Laboratory or
- CHM 26700 - Organic Chemistry Laboratory Honors

14 Credits

Spring 2nd Year

- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory or
- CHM 26800 - Organic Chemistry Laboratory Honors
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Science Core Selection- Credit Hours: 3.00
- Science Core Selection- Credit Hours: 3.00

15 Credits

Fall 3rd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- CHM 49900 - Special Assignments - 2 credits recommended
- CHM 43300 - Biochemistry or
- CHM 53300 - Introductory Biochemistry or
- BCHM 56100 - General Biochemistry I
- CS 17700 - Programming With Multimedia Objects or
- CS 15900 - C Programming
- Science Core Selection- Credit Hours: 3.00

16-17 Credits

Spring 3rd Year

- CHM 24100 - Introductory Inorganic Chemistry
- CHM 33901 - Biochemistry Laboratory
- CHM 49400 - Junior-Senior Chemistry Seminar
- CHM 49900 - Special Assignments - 2 credits recommended
- BIOL 24100 - Biology IV: Genetics And Molecular Biology or
- AGRY 32000 - Genetics
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology or
- AGRY 32100 - Genetics Laboratory
- CHM 43800 - Introduction To Molecular Biotechnology or
- CHM 53800 - Molecular Biotechnology or

- BCHM 56200 - General Biochemistry II

15 Credits

Fall 4th Year

- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 49900 - Special Assignments
- COM 21700 - Science Writing And Presentation
- CHM 32100 - Analytical Chemistry I or
- CHM 32300 - Analytical Chemistry I Honors
- STAT 30100 - Elementary Statistical Methods or
- STAT 35000 - Introduction To Statistics

16 Credits

Spring 4th Year

- CHM 34200 - Inorganic Chemistry
- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- Science Core Selection - Credit Hours: 3.00
- Great Issues In Science - Credit Hours: 3.00

13 Credits

Notes

- **Satisfies a Non-departmental Major Course Requirement
- Students must earn a cumulative GPA of 2.0 in all CHM courses.
- Students must have 32 credits at the 30000 level or above taken at Purdue.
- 2.0 Graduation GPA required for Bachelor of Science degree.
- Students may graduate with Honors in Chemistry distinction. An approved honors thesis and a min of 3.4 GPA are required. Consult your CHM advisor.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)

ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Chemistry (ACS), BSCH

About the Program

Chemistry at Purdue University has a ratio of 1 faculty member for every 8 undergraduates, which allows students to enjoy a great deal of individualized attention. It also offers opportunities for mentoring programs and cutting-edge undergraduate research in a wide range of fields from drug discovery to climate change. Chemistry majors can pursue one of two degrees: B.S. in chemistry, accredited by the American Chemical Society (ACS); or the more flexible B.S. with chemistry as a field of study.

Chemistry (ACS accredited) is designed primarily for students planning professional careers as chemists in industry, universities, or research institutes. This degree program fulfills the recommendations of the Committee of Professional Training of the ACS and graduates will be certified by the ACS as having fulfilled its recommended requirements.

This degree provides an excellent preparation for students pursuing graduate school in Chemistry.

There is also the opportunity to complete in five years a dual degree with chemical engineering if the student has been accepted into the College of Engineering.

Chemistry - American Chemical Society Website

Chemistry Department Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (76-83 credits)

Required Major Courses (46-48 credits)

- CHM 24100 - Introductory Inorganic Chemistry
- CHM 26505 - Organic Chemistry
- CHM 26605 - Organic Chemistry
- CHM 34200 - Inorganic Chemistry
- CHM 34201 - Inorganic Chemistry Laboratory
- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- CHM 42400 - Analytical Chemistry II
- CHM 51300 - Chemical Literature
- CHM 12500 - Introduction To Chemistry I ♦ or
- CHM 11500 - General Chemistry ♦ (satisfies Science Selective for core)

- CHM 12600 - Introduction To Chemistry II or
- CHM 11600 - General Chemistry
- CHM 26500 - Organic Chemistry Laboratory or
- CHM 26700 - Organic Chemistry Laboratory Honors
- CHM 26600 - Organic Chemistry Laboratory or
- CHM 26800 - Organic Chemistry Laboratory Honors
- CHM 32100 - Analytical Chemistry I or
- CHM 32300 - Analytical Chemistry I Honors
- CHM 43300 - Biochemistry or
- CHM 53300 - Introductory Biochemistry

Required Seminars (3 credits)

- CHM 19400 - Freshman Chemistry Orientation
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 49400 - Junior-Senior Chemistry Seminar

Chemistry Selective (3 credits)

- CHM 43800 - Introduction To Molecular Biotechnology
- CHM 46200 - Intermediate Organic Chemistry
- CHM 49900 - Special Assignments
- CHM 53800 - Molecular Biotechnology
- CHM 56000 - Organic Spectroscopic Analysis
- CHM 57900 - Computational Chemistry
- CHM 58100 - Atmospheric Chemistry

Required Calculus and Physics Courses (24-29 credits)

- MA 16100 - Plane Analytic Geometry And Calculus I or

- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations or
- MA 26500 - Linear Algebra and MA 26600 - Ordinary Differential Equations
- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory

Other Departmental /Program Course Requirements (21-62 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00 (fulfilled by PHYS 17200 in major)

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
 Language/Culture Option II
 Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE^ - Credit Hours: 0.00-8.00 (satisfies Science for core) (fulfilled by Required Major courses)

MATHEMATICS - Credit Hours: 0.00-10.00 (satisfies Quantitative Reasoning for core) (fulfilled by Required Major courses)

STATISTICS - Credit Hours: 3.00

- STAT 30100 - Elementary Statistical Methods or
 - STAT 35000 - Introduction To Statistics
- COMPUTING** - Credit Hours: 3.00-4.00
- CS 15900 - C Programming or
 - CS 17700 - Programming With Multimedia Objects
- GENERAL EDUCATION^** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I
General Education Option II
General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-23 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- CHM 19400 - Freshman Chemistry Orientation
- CHM 12500 - Introduction To Chemistry I ♦ or
- CHM 11500 - General Chemistry ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00

15-18 Credits

Spring 1st Year

- PHYS 17200 - Modern Mechanics
- CHM 12600 - Introduction To Chemistry II or
- CHM 11600 - General Chemistry
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00

15-17 Credits

Fall 2nd Year

- CHM 26505 - Organic Chemistry
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 26500 - Organic Chemistry Laboratory or
- CHM 26700 - Organic Chemistry Laboratory Honors
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory

14-15 Credits

Spring 2nd Year

- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory or
- CHM 26800 - Organic Chemistry Laboratory Honors
- MA 26200 - Linear Algebra And Differential Equations or
- MA 26500 - Linear Algebra and MA 26600 - Ordinary Differential Equations
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 32100 - Analytical Chemistry I or
- CHM 32300 - Analytical Chemistry I Honors
- CS 15900 - C Programming or
- CS 17700 - Programming With Multimedia Objects
- STAT 30100 - Elementary Statistical Methods or
- STAT 35000 - Introduction To Statistics

14-15 Credits

Spring 3rd Year

- CHM 24100 - Introductory Inorganic Chemistry
- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- CHM 51300 - Chemical Literature
- COM 21700 - Science Writing And Presentation
- Science Core Selection - Credit Hours: 3.00

15 Credits

Fall 4th Year

- CHM 42400 - Analytical Chemistry II
- CHM 49400 - Junior-Senior Chemistry Seminar
- CHM 43300 - Biochemistry or
- CHM 53300 - Introductory Biochemistry
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

14 Credits

Spring 4th Year

- CHM 34200 - Inorganic Chemistry
- CHM 34201 - Inorganic Chemistry Laboratory
- Chemistry Slective - Credit Hours: 3.00
- Great Issues In Science - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

12 Credits

Notes

- **Satisfies a Non-departmental Major Course Requirement
- Students must earn a cumulative GPA of 2.0 in all CHM courses.
- Students must have 32 credits at the 30000 level or above taken at Purdue.
- 2.0 Graduation GPA required for Bachelor of Science degree.
- Students may graduate with Honors in Chemistry distinction. An approved honors thesis and a min of 3.4 GPA are required. Consult your CHM advisor.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Chemistry, BS

About the Program

Chemistry at Purdue University has a ratio of 1 faculty member for every 8 undergraduates, which allows students to enjoy a great deal of individualized attention. It also offers opportunities for mentoring programs and cutting-edge undergraduate research in a wide range of fields from drug discovery to climate change.

The B.S. program with chemistry as a field of study is designed for those who want training in chemistry and freedom to pursue minors or second majors in other areas. Common areas of interest have been Forensic Sciences, Biology, Foreign Languages, Management, Psychology, and other Liberal Arts areas. The flexibility in this program adapts easily to Study Abroad semesters.

[Chemistry Website](#)

[Chemistry Department Major Change \(CODO\) Requirements](#)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (60-64 credits)

Required Major Courses (37-39 credits)

- CHM 24100 - Introductory Inorganic Chemistry
- CHM 26505 - Organic Chemistry ♦
- CHM 26605 - Organic Chemistry
- CHM 34200 - Inorganic Chemistry
- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- CHM 12500 - Introduction To Chemistry I ♦ or
- CHM 11500 - General Chemistry ♦ (satisfies Science for core)
- CHM 12600 - Introduction To Chemistry II or
- CHM 11600 - General Chemistry
- CHM 26500 - Organic Chemistry Laboratory or
- CHM 26700 - Organic Chemistry Laboratory Honors
- CHM 26600 - Organic Chemistry Laboratory or
- CHM 26800 - Organic Chemistry Laboratory Honors
- CHM 32100 - Analytical Chemistry I or
- CHM 32300 - Analytical Chemistry I Honors

Required Seminar Courses (3 credits)

- CHM 19400 - Freshman Chemistry Orientation
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 49400 - Junior-Senior Chemistry Seminar

Required Calculus and Physics Courses (20-22 credits)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- MA 26100 - Multivariate Calculus
- PHYS 17200 - Modern Mechanics
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory

Other Departmental /Program Course Requirements (21-62 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or

- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
or
- HONR 19903 - Interdisciplinary Approaches In Writing
TECHNICAL WRITING AND PRESENTATION* - Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00 (fulfilled by PHYS 17200 in major)

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE^ - Credit Hours: 0.00-8.00 (satisfies Science for core) (fulfilled by Required Major courses)

MATHEMATICS - Credit Hours: 0.00-10.00 (satisfies Quantitative Reasoning for core) (fulled by Required Major courses)

STATISTICS - Credit Hours: 3.00

- STAT 30100 - Elementary Statistical Methods or
- STAT 35000 - Introduction To Statistics
- **COMPUTING** - Credit Hours: 3.00-4.00
- CS 15900 - C Programming or
- CS 17700 - Programming With Multimedia Objects
- **GENERAL EDUCATION^** (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00
 - General Education Option I
 - General Education Option II
 - General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (0-29 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)

- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- CHM 19400 - Freshman Chemistry Orientation
- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ or
- MA 16500 - Analytic Geometry And Calculus I ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- Science Core Selection - Credit Hours: 3.00-4.00

15-19 Credits

Spring 1st Year

- CHM 11600 - General Chemistry or
- CHM 12600 - Introduction To Chemistry II
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

14-16 Credits

Fall 2nd Year

- CHM 26505 - Organic Chemistry ♦
- CHM 29400 - Sophomore Chemistry Seminar
- MA 26100 - Multivariate Calculus
- PHYS 17200 - Modern Mechanics

- CHM 26500 - Organic Chemistry Laboratory or
- CHM 26700 - Organic Chemistry Laboratory Honors

14 Credits

Spring 2nd Year

- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory or
- CHM 26800 - Organic Chemistry Laboratory Honors
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- CHM 32100 - Analytical Chemistry I or
- CHM 32300 - Analytical Chemistry I Honors
- STAT 30100 - Elementary Statistical Methods or
- STAT 35000 - Introduction To Statistics
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

15 Credits

Spring 3rd Year

- CHM 24100 - Introductory Inorganic Chemistry
- CS 17700 - Programming With Multimedia Objects or
- CS 15900 - C Programming
- Science Core Selection - Credit Hours: 3.00
- Great Issues In Science - Credit Hours: 3.00

13 - 14 Credits

Fall 4th Year

- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 49400 - Junior-Senior Chemistry Seminar
- COM 21700 - Science Writing And Presentation

- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

14 Credits

Spring 4th Year

- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- CHM 34200 - Inorganic Chemistry
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 4.00 or 5.00

14 - 15 Credits

Notes

- **Satisfies a Non-departmental Major Course Requirement
- Students must earn a cumulative GPA of 2.0 in all CHM courses.
- Students must have 32 credits at the 30000 level or above taken at Purdue.
- 2.0 Graduation GPA required for Bachelor of Science degree.
- Students may graduate with Honors in Chemistry distinction. An approved honors thesis and a min of 3.4 GPA are required. Consult your CHM advisor.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

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Minor

Chemistry Minor

Chemistry Minor provides a strong background in Chemistry for students majoring in some other discipline.

Requirements for the Minor (16 credits)

The 16 credits can come from Area 1 and/or Area 2 and/or Area 3 and/or Area 4.

Area 1 Organic Chemistry (0-10 credits)

Organic chemistry courses may only be taken during the first and second semester. Students may only take one (1) first semester and one (1) second semester organic course, as described below.

- CHM 25500 - Organic Chemistry or
- CHM 26100 - Organic Chemistry or
- CHM 26505 - Organic Chemistry or
- MCMP 20400 - Organic Chemistry I
- CHM 25600 - Organic Chemistry or
- CHM 26200 - Organic Chemistry or
- CHM 26605 - Organic Chemistry or
- MCMP 20500 - Organic Chemistry II
- CHM 25501 - Organic Chemistry Laboratory or
- CHM 26300 - Organic Chemistry Laboratory or
- CHM 26500 - Organic Chemistry Laboratory or
- CHM 26700 - Organic Chemistry Laboratory Honors
- CHM 25601 - Organic Chemistry Laboratory or
- CHM 26400 - Organic Chemistry Laboratory or
- CHM 26600 - Organic Chemistry Laboratory or
- CHM 26800 - Organic Chemistry Laboratory Honors

Area 2 Physical Chemistry (0-7 credits)

- CHM 37200 - Physical Chemistry or
- CHM 37300 - Physical Chemistry
- CHM 37000 - Topics In Physical Chemistry or
- CHM 37400 - Physical Chemistry

Area 3 Biochemistry (0-3 credits)

- CHM 53300 - Introductory Biochemistry or
- BCHM 56100 - General Biochemistry I or
- CHM 33900 - Biochemistry: A Molecular Approach or
- CHM 43300 - Biochemistry

Area 4 Others (0-16 credits)

Course choices in addition to Area 1, Area 2 and Area 3 options:

- CHM 32100 - Analytical Chemistry I
- CHM 32300 - Analytical Chemistry I Honors
- CHM 42400 - Analytical Chemistry II
- CHM 24100 - Introductory Inorganic Chemistry
- CHM 34200 - Inorganic Chemistry
- CHM 34201 - Inorganic Chemistry Laboratory
- CHM 37301 - Physical Chemistry Laboratory
- CHM 37401 - Physical Chemistry Laboratory
- CHM 57900 - Computational Chemistry
- CHM 33901 - Biochemistry Laboratory
- CHM 46200 - Intermediate Organic Chemistry
- CHM 56000 - Organic Spectroscopic Analysis
- CHM 43800 - Introduction To Molecular Biotechnology
- CHM 53800 - Molecular Biotechnology
- CHM 58100 - Atmospheric Chemistry
- CHM 51300 - Chemical Literature
- CHM 49900 - Special Assignments - (Undergraduate research - up to 3 credits)
- CHM 49000 - Selected Topics In Chemistry For Upper-Division Students - (Great Issues)

Notes

- Please note that CHM 20000, CHM 22400, CHM 25700 and CHM 33300 cannot be used to complete the minor.
- To qualify for the minor, the following classes must be completed with a cumulative GPA of 2.0 or better.
- ALL COURSES FOR THIS MINOR MUST BE TAKEN AT PURDUE UNIVERSITY WEST LAFAYETTE.
- Study Abroad CHM courses approved by the Department of Chemistry will be allowed to meet the minor requirements.

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Department of Computer Science

Department of Computer Science

Purdue Computer Science is one of the country's top-ranked programs. Faculty members are shaping the future of information technology through cutting-edge research. Students can take courses that include such topics as graphics and animation, competitive programming, cryptography and security, networks, software engineering, distributed systems, information systems, artificial intelligence, and bioinformatics. Computer Science graduates pursue careers in animation and visualization, biotechnology, computational finance, computer graphics, consulting, information security, wireless systems, and software engineering. Many also go on to graduate or professional school in areas such as business, law, or medicine.

The department is located in the Lawson Computer Science Building, which opened in 2006. In addition to offering an inviting and comfortable environment, the building is equipped with cutting-edge networking and computing technologies, including 10-gigabit Ethernet cabling and wireless access throughout the building. There are four classrooms, four instructional labs, five research labs, and a student activity center. The building also offers students a variety of interaction areas, and a deli-style café and espresso bar. A 16-by-9 foot tiled video wall donated by the Harris Corporation is used for a variety of purposes, including notices of campus events, workshop and colloquium speakers, news and information, research demonstrations, and class projects.

The Purdue Computer Science Department offers a Bachelor of Science (BS), a minor in computer science, or a 5-year combined BS/MS degree. The department also offers an Honors Program, and the opportunity to participate in the Cooperative Education Program. A transfer program is also available, TSAP in Computer Science.

Faculty

[Computer Science Website](#)

Contact Information

General Department Contact

Purdue University
Department of Computer Science
305 N. University Street
West Lafayette, IN 47907-2107
Phone: (765) 494-6010
Fax: (765) 494-0739

Graduate Information

For Graduate Information please see [Computer Science Graduate Program Information](#).

Baccalaureate

Computer Science Honors, BS

About the Program

Students in the Computer Science Honors major, in addition to fulfilling all the requirements for a BS in Computer Science, will complete additional coursework and a research project. Honors students must maintain an overall GPA of

3.25 plus at least a 3.6 in Computer Science and required CSHO courses. The program requirements include additional math coursework, three out of four selected CS and ECE courses, a research seminar and project, and a graduate level course. It is especially suitable for students planning on graduate level coursework, though it also offers advantages to students seeking employment.

Students are invited to declare the major if they meet the qualifications after their first semester or after completion of the six core courses. Students who have been admitted to the Honors College may also join the major. Students may also request to declare the major if they meet qualifications no later than their seventh semester (student must have at least 2 academic semesters remaining to accommodate both the research seminar and the research project).

- Computer Science Concentration - Computational Science and Engineering Track
- Computer Science Concentration - Computer Graphics and Visualization Track
- Computer Science Concentration - Database and Information Systems Track (DBIS)
- Computer Science Concentration - Algorithmic Foundations
- Computer Science Concentration - Machine Intelligence Track (MI)
- Computer Science Concentration - Programming Language Track (PL)
- Computer Science Concentration - Security Track
- Computer Science Concentration - Software Engineering Track
- Computer Science Concentration - Systems Software Track

Computer Science Website

Computer Science Major Change (CODO) Requirements (Students must first CODO into Computer Science before Honors.)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.

- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Computer Science Honors Major Courses (58-63 credits)

Required CS Honors Major Math Courses (7-8 credits)

Must have C or better to meet prerequisite for certain upper level CS courses

- MA 35100 - Elementary Linear Algebra
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus

Required CS Major Core Courses (21 credits)

Must have C or better in all courses.

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ (satisfies Computing and Teambuilding for College of Science)
- CS 18200 - Foundations Of Computer Science ♦
- CS 24000 - Programming In C ♦
- CS 25000 - Computer Architecture
- CS 25100 - Data Structures And Algorithms
- CS 25200 - Systems Programming

Required CS Major Track Selectives (18-21 credits)

Must have C or better in all courses.

- CS Track Required course - Credit Hours: 3.00
- CS Track Required course - Credit Hours: 3.00
- CS Track Required/Elective course - Credit Hours: 3.00
- CS Track Required/Elective course - Credit Hours: 3.00
- CS Track Elective course - Credit Hours: 3.00
- CS Track Elective course - Credit Hours: 3.00
- CS Track Elective course (if Computational Science & Engineering track or Database & Information Systems track) - Credit Hours: 3.00

Required CS Honors - (12-13 credits)

Need CS GPA of 3.60 or better & cumulative GPA of 3.25 and must have a C or better in all courses

- CS 39700 - Honors Seminar
- CS 49700 - Honors Research Project (may use for Track Elective - see Track chairperson for approval)
- MA 35301 - Linear Algebra II or
- MA 41600 - Probability or
- MA 51800 - Advanced Discrete Mathematics or
- An approved MA course with course number higher than MA 35100 - Elementary Linear Algebra or
- An approved STAT course with course number higher than STAT 51100 - Statistical Methods
- CS 50000 level course (may use for Track Elective - see Track chairperson for approval) - Credit Hours: 3.00
- Three out of the four following courses: CS 35400, CS 35200, CS 38100, ECE 27000. CS 35400, CS 35200, and CS 38100 may be used to meet track requirements if the courses are required or electives for the student's track.

Other Departmental/Program Course Requirements (32-55 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

- **FIRST-YEAR COMPOSITION** – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is suggested.)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 (*fulfilled by CS 18000 in major*)

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core.)

LABORATORY SCIENCE^ - Credit Hours: 6.00-8.00 (satisfies Science for core)

- Laboratory Science Option I
- Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I (must have C or better to meet prerequisite for CS 18200) or
- MA 16500 - Analytic Geometry And Calculus I (must have C or better to meet prerequisite for CS 18200)
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit Hours: 3.00

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 51100 - Statistical Methods ♦

COMPUTING - Credit Hours: 0.00 (*fulfilled by major courses*)

GENERAL EDUCATION^ - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science for core.)

- General Education Option I
- General Education Option II
- General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (2-30 credits)

Enrollment in freshman seminar courses CS 19100 and CS 19300 is required with CS 18000. They are not degree requirements. CS 19700 - Freshman Honors Seminar, CS 29100 - Sophomore Development Seminar, and CS 39100 are optional but recommended.

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ ***
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (CS 19100 suggested)
- Elective - Credit Hours: 1.00 (CS 19300 suggested)
- Elective - Credit Hours: 2.00

15-17 Credits

Spring 1st Year

- CS 18200 - Foundations Of Computer Science *** ♦
- CS 24000 - Programming In C *** ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Electives - Credit Hours: 1.00 (Recommended CS 19700)
- Electives - Credit Hours: 1.00

15-17 Credits

Fall 2nd Year

- CS 25000 - Computer Architecture ***
- CS 25100 - Data Structures And Algorithms ***
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 1.00 (Recommended CS 29100)

15-17 Credits

Spring 2nd Year

- CS 25200 - Systems Programming ***
- MA 35100 - Elementary Linear Algebra
- COM 21700 - Science Writing And Presentation ♦
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

16-17 Credits

Fall 3rd Year

- MA 35301 - Linear Algebra II *** or
- MA 41600 - Probability *** or
- MA 51800 - Advanced Discrete Mathematics *** or
- An approved MA course with a course number higher than MA 35100 - Elementary Linear Algebra ***
or
- An approved MA course with a course number higher than STAT 51100***
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 51100 - Statistical Methods
- CS track requirement - Credit Hours: 3.00 *** (Suggested CS 35200)
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (Recommended CS 39100)
- Elective - Credit Hours: 3.00

16-17 Credits

Spring 3rd Year

- CS track requirement- Credit Hours: 3.00 *** (Suggested CS 35400)
- CS track requirement/elective - Credit Hours: 3.00 ***
- Great Issues In Science - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- CS 39700 - Honors Seminar
- CS track elective - Credit Hours: 3.00 *** (Suggested CS 38100)
- CS track requirement/elective - Credit Hours: 3.00 ***
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-17 Credits

Spring 4th Year

- CS 49700 - Honors Research Project
- CS track elective - Credit Hours: 3.00 ***
- CS 50000 level - Credit Hours: 3.00 ***
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-17 Credits

Notes

- 2.0 Major and Graduation GPA required for Bachelor of Science degree.
- 3.6 CS GPA and 3.25 cumulative GPA is required for graduation with the CS Honors degree.
- ***All CS core courses and all track requirements, regardless of department, must be completed with a grade of "C" or higher (effective fall 2011). All prerequisites to CS core courses and track requirements, regardless of department, must be completed with a grade of C or higher (effective Fall 2015). Information about CS Tracks -click here

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Computer Science, BS

About the Program

Purdue Computer Science is one of the country's top-ranked programs. Faculty members are shaping the future of information technology through cutting-edge research. Students can take courses that include such topics as graphics and animation, web programming, competitive programming, cryptography and security, networks, software engineering, distributed systems, information systems, artificial intelligence, and bioinformatics.

The Purdue University Department of Computer Science has a comprehensive and exciting curriculum for its undergraduate students. The flexible curriculum offers adventurous young women and men an excellent opportunity to be involved in a dynamic discipline that will continue to grow and to contribute significantly to progress in many other disciplines and ultimately to changes in human society that are nothing short of profound. Students learn communication skills, teamwork, and problem-solving skills and acquire the necessary technical skills for positions in computing in nearly any industry.

[Computer Science Website](#)

[Computer Science Major Change \(CODO\) Requirements](#)

Computer Science students begin by taking six core courses that teach them the fundamentals of computer science. Students can then select one or more tracks, which allow them to deepen their understanding in a specific area (or areas) of Computer Science. These academic tracks include:

- [Computer Science Concentration - Computational Science and Engineering Track](#)
- [Computer Science Concentration - Computer Graphics and Visualization Track](#)
- [Computer Science Concentration - Database and Information Systems Track \(DBIS\)](#)
- [Computer Science Concentration - Algorithmic Foundations](#)
- [Computer Science Concentration - Machine Intelligence Track \(MI\)](#)
- [Computer Science Concentration - Programming Language Track \(PL\)](#)
- [Computer Science Concentration - Security Track](#)
- [Computer Science Concentration - Software Engineering Track](#)

- Computer Science Concentration - Systems Software Track

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

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1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Computer Science Major Courses (46-50 credits)

Required CS Major Math Courses (7-8 credits)

Must have C or better to meet prerequisite for certain upper level CS courses

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- MA 26500 - Linear Algebra or
- MA 35100 - Elementary Linear Algebra

Required CS Major Core Courses (21 credits)

Must have C or better in all courses.

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ (satisfies Computing and Teambuilding requirements for College of Science core)
- CS 18200 - Foundations Of Computer Science ♦
- CS 24000 - Programming In C ♦
- CS 25000 - Computer Architecture
- CS 25100 - Data Structures And Algorithms
- CS 25200 - Systems Programming

Required CS Major Track Selectives (18-21 credits)

Please see links to all track requirements above.

Must have a C or better in all courses. Select track from list above.

- CS Track Required course - Credit Hours: 3.00
- CS Track Required Course - Credit Hours: 3.00
- CS Track Required/Elective course - Credit Hours: 3.00
- CS Track Required/Elective course - Credit Hours: 3.00
- CS Track Elective course - Credit Hours: 3.00
- CS Track Elective course - Credit Hours: 3.00
- CS Track Elective course (if Computational Science & Engineering track or Database & Information Systems track) - Credit Hours: 3.00

Other Departmental/Program Course Requirements (32-54 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is suggested.)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 (*fulfilled by CS 18000 in major*)

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for University Core)

LABORATORY SCIENCE^ - Credit Hours: 6.00-8.00 (satisfies Science for University Core)

- Laboratory Science Option I
- Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I (Must have C or better to meet prerequisite for CS 18200) or
- MA 16500 - Analytic Geometry And Calculus I (Must have C or better to meet prerequisite for CS 18200)
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit Hours: 3.00

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 51100 - Statistical Methods ♦

COMPUTING - Credit Hours: 0.00 (*fulfilled by major courses*)

GENERAL EDUCATION^ - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science for core)

General Education Option I

General Education Option II

General Education Option III

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (16-42 credits)

CS 19100 - Freshman Resources Seminar and CS 19300 - Tools are required freshman seminar courses; corequisites with CS 18000. They are not degree requirements. CS 29100 - Sophomore Development Seminar and CS 39100 - Junior Resources Seminar are optional but recommended.

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ ***
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00-4.00
- Elective - Credit Hours: 1.00 (CS 19100 suggested.)
- Elective - Credit Hours: 1.00 (CS 19300 suggested.)

13-15 Credits

Spring 1st Year

- CS 18200 - Foundations Of Computer Science ♦ ***
- CS 24000 - Programming In C ♦ ***
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Electives - Credit Hours: 1.00 - 3.00

14-18 Credits

Fall 2nd Year

- CS 25000 - Computer Architecture ***
- CS 25100 - Data Structures And Algorithms ***
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (CS 29100 recommended)

15-17 Credits

Spring 2nd Year

- COM 21700 - Science Writing And Presentation
- CS 25200 - Systems Programming ***
- MA 26500 - Linear Algebra or
- MA 35100 - Elementary Linear Algebra
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

16-17 Credits

Fall 3rd Year

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 51100 - Statistical Methods ♦
- CS track requirement - Credit Hours: 3.00 ***
- CS track requirement - Credit Hours: 3.00 ***
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (CS 39100 recommended)
- Elective - Credit Hours: 3.00

16-17 Credits

Spring 3rd Year

- CS track requirement - Credit Hours: 3.00 ***
- CS track requirement - Credit Hours: 3.00 ***
- Great Issues In Science Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-17 Credits

Fall 4th Year

- CS track requirement - Credit Hours: 3.00 ***

- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

16-18 Credits

Spring 4th Year

- CS track requirement - Credit Hours: 3.00 ***
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-17 Credits

Notes

- 2.0 Major and Graduation GPA required for Bachelor of Science degree.
- ***All CS core courses and all track requirements, regardless of department, must be completed with a grade of "C" or higher.
- All prerequisites to CS core courses and track requirements, regardless of department, must be completed with a grade of C or higher.
- Enrollment in freshman seminar courses CS 19100 and CS 19300 is required with CS 18000. They are not degree requirements. CS 29100 - Sophomore Development Seminar and CS 39100 - Junior Resources Seminar are optional but recommended.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

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GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

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The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Data Science, BS (CS)

About the Program

Majoring in data science at Purdue will place you at the forefront of an emerging field and prepare you for an exciting career at the intersection of computer science and statistics.

Created jointly by Purdue's Department of Computer Science and Department of Statistics, the data science major will open pathways to careers in virtually every area of society, from healthcare, security and sustainability to education, business and economics.

Curriculum and Degree Requirements for College of Science

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1. Major
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3. Electives

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College of Science Core Requirements

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The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Degree Requirements

120 Credits Required

Data Science Major Courses (50-54 credits)

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ (satisfies Computing and Teambuilding for College of Science core)
- CS 18200 - Foundations Of Computer Science
- CS 19100 - Freshman Resources Seminar
- CS 19300 - Tools
- CS 25100 - Data Structures And Algorithms
- CS 37300 - Data Mining And Machine Learning
- CS 38003 - Python Programming
- MA 35100 - Elementary Linear Algebra
- STAT 35500 - Statistics For Data Science
- STAT 41600 - Probability
- STAT 41700 - Statistical Theory
- CS 24200 - Introduction To Data Science or
- STAT 24200 - Introduction To Data Science
- CS 49000 - Topics In Computer Sciences For Undergraduates - (Large Scale Data Analysis (LSDA))
or
- STAT 49000 - Topics In Statistics For Undergraduates - (Large Scale Data Analysis (LSDA))
- MA 26100 - Multivariate Calculus or

- MA 27101 - Honors Multivariate Calculus

Ethics Elective (3 credits)

Choose one option.

- ILS 23000 - Data Science And Society: Ethical Legal Social Issues or
- PHIL 20700 - Ethics For Technology, Engineering, And Design or
- PHIL 20800 - Ethics Of Data Science - (must be 3.00 Credit Hour option)

CS Electives (6 credits)

Choose two CS electives from the following list.

- CS 31400 - Numerical Methods
- CS 35500 - Introduction To Cryptography
- CS 47100 - Introduction to Artificial Intelligence
- CS 47300 - Web Information Search And Management
- CS 49000 - Topics In Computer Sciences For Undergraduates - IDV-Introduction to Data Visualization
- CS 30700 - Software Engineering I or
- CS 40800 - Software Testing
- CS 34800 - Information Systems or
- CS 44800 - Introduction To Relational Database Systems
- CS 38100 - Introduction To The Analysis Of Algorithms or
- CS 48300 - Introduction To The Theory Of Computation

Statistics Elective (3 credits)

Choose one.

- STAT 42000 - Introduction To Time Series
- STAT 50600 - Statistical Programming And Data Management
- STAT 51200 - Applied Regression Analysis
- STAT 51300 - Statistical Quality Control
- STAT 51400 - Design Of Experiments
- STAT 52200 - Sampling And Survey Techniques
- STAT 52500 - Intermediate Statistical Methodology
- MA 49000 - Topics In Mathematics For Undergraduates - Elementary Stochastic Processes or
- STAT 49000 - Topics In Statistics For Undergraduates - Elementary Stochastic Processes

CS Capstone (0-3 credits)

Choose one option below.

- For-Credit Options:
- STAT 49000 - Topics In Statistics For Undergraduates (Data Science Capstone or Research Project In Data Science) - Credit Hours: 3.00

- CS 49000 - Topics In Computer Sciences For Undergraduates - Introduction to Data Visualization (if taken after CS 37300; could not be used as CS Elective) - Credit Hours: 3.00
- CS 30700 - Software Engineering I
- CS 49700 - Honors Research Project
- EPCS 41100 - Senior Design Participation In EPICS
- EPCS 41200 - Senior Design Participation In EPICS
- Zero-Credit Options:
- CS 38600 - Professional Practice IV or
- STAT 38600 - Cooperative Work Experience IV
- CS 48700 - Professional Practice V or
- STAT 48700 - Cooperative Work Experience V
- CS 49000 Research Project in Data Science - Credit Hours: 0.00 or
- STAT 49000 Research Project in Data Science - Credit Hours: 0.00

Other Departmental/Program Course Requirements (29-58 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION - Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
 Language/Culture Option II
 Language/Culture Option III

GREAT ISSUES IN SCIENCE^ - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE^ - Credit Hours: 6.00-8.00 (satisfies Science for core)

Laboratory Science Option I
 Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I (Must have C or better to meet prerequisite for CS 18200) or
- MA 16500 - Analytic Geometry And Calculus I (Must have C or better to meet prerequisite for CS 18200)

- MA 16200 - Plane Analytic Geometry And Calculus II or
 - MA 16600 - Analytic Geometry And Calculus II
- COMPUTING** - Met with required major courses.

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (8-41 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Additional Requirements

Click [here](#) for Data Science Supplemental Information.

Program Requirements

Fall 1st Year

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ *
- CS 19100 - Freshman Resources Seminar
- CS 19300 - Tools
- MA 16100 - Plane Analytic Geometry And Calculus I or

- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 3.00

16-18 Credits

Spring 1st Year

- CS 18200 - Foundations Of Computer Science *
- CS 38003 - Python Programming
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 1.00

15-18 Credits

Fall 2nd Year

- STAT 35500 - Statistics For Data Science
- CS 24200 - Introduction To Data Science or
- STAT 24200 - Introduction To Data Science
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 - 3.00

14-18 Credits

Spring 2nd Year

- CS 25100 - Data Structures And Algorithms *
- MA 35100 - Elementary Linear Algebra
- STAT 41600 - Probability
- ILS 23000 - Data Science And Society: Ethical Legal Social Issues ♦ or
- PHIL 20700 - Ethics For Technology, Engineering, And Design ♦ or
- PHIL 20800 - Ethics Of Data Science ♦ - (must be 3.00 Credit Hour option)
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 - 2.00

16-18 Credits

Fall 3rd Year

- CS 37300 - Data Mining And Machine Learning
- STAT 41700 - Statistical Theory
- COM 21700 - Science Writing And Presentation
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- CS Elective - Credit Hours 3.00
- Statistics Elective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-17 Credits

Fall 4th Year

- CS 49000 - Topics In Computer Sciences For Undergraduates - (Large Scale Data Analytics (LSDA))
or
- STAT 49000 - Topics In Statistics For Undergraduates - (Large Scale Data Analytics (LSDA))
- CS Elective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 1.00 - 3.00

16-17 Credits

Spring 4th Year

- Capstone Experience/Course - Credit Hours: 0.00 - 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

13-18 Credits

Notes

- A minimum of 32 semester credits of upper level (30000+) required
- 2.0 Major and Graduation GPA required for Bachelor of Science degree.
- *All CS and STAT courses required for the major, must be completed with a grade of "C" or better.
- *All prerequisites to CS and STAT courses required for the major, regardless of department, must be completed with a grade of "C" or better.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Computer Science Minor

Application Process

Students must have completed with a 'C' grade or better both CS 18000 and a Math class as follows:

- CS 18000 (or receive a 4 or a 5 on the AP Computer Science test and pass the CS 18000 test-out exam) **and**
- MA 16100 or MA 16500 or (MA 16010 and MA 16020)

or

- prior to the Fall 2016 semester, MA 16300, or MA 16700, or (MA 16010 and MA MA 16020), or MA 16021
- or establish credit for Calculus I through AP credit, Transfer Credit, or credit by exam.

To apply:

1. Complete the CS Minor Application with your advisor.
2. Submit complete and signed application to the administrative assistant in the CS Undergraduate Advising Office (LWSN 1123) between 8:00 am - 12:00 pm, or 1:00 pm - 5:00 pm, Monday through Friday, or to an advisor during their posted non-major walk-in hours. If the application is approved, a minor in Computer Science will be granted upon completion of the following requirements:

- Five (5) CS courses from the list below. AP credit plus CS 18000 test out can be used for the minor application as described above, but will not count toward the five required CS courses.
- All courses' pre-requisites must be met in order to enroll in CS courses. Click the link for each course to see the required pre-requisites.
- All courses must be taken at the Purdue West Lafayette campus.
- A minimum grade of 'C' in all CS courses used towards the minor is required. (A 'C-' is not accepted.)
- **Enrollment in all CS courses is subject to space availability.** CS Minors are expected to take CS courses during off-peak sessions. Students are responsible for maintaining an up-to-date minor plan of study, for knowing registration timelines, and for requesting space through the correct process. Computer Science majors are given priority in registering for CS classes.
- CS Minors may take a total of five (5) CS major courses and no more.

Requirements for the Minor (16-18 credits)

Required Courses (10 credits)

- CS 18000 - Problem Solving And Object-Oriented Programming *
- CS 18200 - Foundations Of Computer Science **
- CS 24000 - Programming In C

Elective Courses - Choose Two (6-8 credits)

- CS 25000 - Computer Architecture
- CS 25100 - Data Structures And Algorithms
- CS 25200 - Systems Programming
- CS 30700 - Software Engineering I
- CS 31400 - Numerical Methods
- CS 33400 - Fundamentals Of Computer Graphics
- CS 34800 - Information Systems
- CS 35500 - Introduction To Cryptography
- CS 38100 - Introduction To The Analysis Of Algorithms

- CS 40800 - Software Testing
- CS 44800 - Introduction To Relational Database Systems
- CS 47100 - Introduction to Artificial Intelligence

Notes

- *Students with AP CS credit plus CS 18000 test out (as described above) may use their AP credit in place of CS 18000 as a pre-requisite for other CS courses, but AP credit will not count toward the five (5) CS courses. In this case, the student must choose three of the Elective Courses.
- **Math majors may use MA 37500 in place of CS 18200 as a pre-requisite for other CS courses, but MA 37500 will not count toward the five (5) CS courses. In this case, the student must choose three of the Elective Courses.

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Pre-Program

Data Science First Year (CS)

Data Science First Year

Program Requirements (25-28 credits)

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ * (satisfies Computing and Teambuilding for College of Science core)
- CS 18200 - Foundations Of Computer Science *
- CS 19100 - Freshman Resources Seminar
- CS 19300 - Tools
- CS 38003 - Python Programming
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 4.00

Fall 1st Year

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ *
- CS 19100 - Freshman Resources Seminar
- CS 19300 - Tools
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 3.00

16-18 Credits

Spring 1st Year

- CS 18200 - Foundations Of Computer Science *
- CS 38003 - Python Programming
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16600 - Analytic Geometry And Calculus II or
- MA 16200 - Plane Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 1.00

14-17 Credits

Notes

- * All CS core courses and all track requirements, regardless of department, must be completed with a grade of "C" or better.
- All prerequisites to CS core courses and track requirements, regardless of department, must be completed with a grade of "C" or better.

Program Information

Computer Science Concentration - Algorithmic Foundations

Objectives:

The Foundations of Computer Science track gives students a broad education on foundational concepts, tools, and techniques underlying existing and future areas of computer science.

Required Courses (3 Courses)

- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 35200 - Compilers: Principles And Practice or
- CS 35400 - Operating Systems
- CS 37300 - Data Mining And Machine Learning or
- CS 47100 - Introduction to Artificial Intelligence

Electives (3 Courses)

- CS 31400 - Numerical Methods
- CS 33400 - Fundamentals Of Computer Graphics
- CS 35300 - Principles Of Concurrency And Parallelism
- CS 35500 - Introduction To Cryptography
- CS 44800 - Introduction To Relational Database Systems
- CS 45600 - Programming Languages
- CS 48300 - Introduction To The Theory Of Computation
- MA 34100 - Foundations Of Analysis or
- MA 35301 - Linear Algebra II or
- MA 36200 - Topics In Vector Calculus or
- MA 36600 - Ordinary Differential Equations or
- MA 38500 - Introduction To Logic or
- MA 42100 - Linear Programming And Optimization Techniques or
- MA 45300 - Elements Of Algebra I or
- One three-credit computer science course at the 300, 400, 500 level* or an independent study course approved by the track chair.

Notes

- *Foundations Electives exclude programming language classes CS 38001, CS 38002 and CS 38003, as well as CS 39100 and CS 39700. The use of any Variable Title course must be approved by the faculty.
- Use of 300, 400, and 500 level CS courses outside of track or an independent study course to count as a track elective requires track chair approval.
- Non-CS courses and graduate level courses may have additional prerequisites that must be met in order to be eligible to take the course.
- No more than one Math course may be counted toward the Electives.
- All track requirements, regardless of department, must be completed with a grade of C or higher.
- Minimum grade requirement for prerequisites is C unless alternative minimum grade requirement is listed.
- No course can be counted both for a required and elective course within the same track.

Computer Science Concentration - Computational Science and Engineering Track

Objectives:

This track is intended to introduce computer science basics of Computational Science and Engineering (CS&E). Students not intending to pursue an advanced degree are advised to choose Option 1 for electives and to take courses in some area of pure or applied science with the objective of learning how to develop software useful for the chosen area. Students intending to pursue an advanced degree are advised to choose Option 2 for electives and also to take the following courses: Physics lab science courses, MA 35100 rather than MA 26500, MA 36200 or MA 44200, MA 36600 rather than MA 26600, MA 34100 or MA 44000 analysis.

Required Courses (5 Courses)

- MA 36600 - Ordinary Differential Equations or
- MA 26600 - Ordinary Differential Equations
- CS 31400 - Numerical Methods
- CS 38100 - Introduction To The Analysis Of Algorithms

Applications

One of the following list:

- CS 37300 - Data Mining And Machine Learning
- CS 47300 - Web Information Search And Management
- CS 47800 - Introduction to Bioinformatics
- ECE 30100 - Signals And Systems
- IE 33600 - Operations Research - Stochastic Models

Systems

One of the following list:

- CS 35200 - Compilers: Principles And Practice
- CS 35300 - Principles Of Concurrency And Parallelism
- CS 35400 - Operating Systems

Electives (2 Courses)

- CS 30700 - Software Engineering I
- CS 42200 - Computer Networks
- CS 45600 - Programming Languages
- CS 47100 - Introduction to Artificial Intelligence
- CS 48300 - Introduction To The Theory Of Computation
- CS 51400 - Numerical Analysis
- CS 51500 - Numerical Linear Algebra
- CS 52000 - Computational Methods In Optimization
- CS 52500 - Parallel Computing
- IE 33500 - Operations Research - Optimization
- MA 34100 - Foundations Of Analysis
- MA 44000 - Honors Real Analysis I

Notes

- At least four (4) of the seven (7) courses for Computational Science and Engineering track must be CS courses
- Any course beyond the one required class from the list of Applications/Systems courses may count as an elective.
- Non-CS courses and graduate level courses may have additional prerequisites that must be met to be eligible to take the course.
- All track requirements, regardless of department, must be completed with a grade of C or better.
- Minimum grade requirement for prerequisites are 'C' unless alternative minimum grade requirement is listed.
- No course may be counted for both a required and elective course within the same track.

Computer Science Concentration - Computer Graphics and Visualization Track

Objectives

The track is designed to prepare students for work and/or for graduate school in computer graphics, visualization, and related areas. Computer graphics refers to modeling (including 3D acquisition) and rendering 3D objects and scenes. Visualization refers to using imagery to convey digital information and facilitate its interpretation and analysis. Jobs and activities for students graduating from this track may include:

Graphics-related Industry jobs (e.g., Intel, NVIDIA, Microsoft, Adobe, IBM, Google) - working on graphics software, hardware, and applications.

CAD and Architectural Applications - developing CAD/Engineering/Architecture related applications.

Movie Industry (e.g., Pixar, Dreamworks, Disney, Sony) - working on creating movies and related tools.

Gaming Industry (e.g., Electronic Arts, Midway Games, Disney, Sony) - working on game programming and related tools.

Laboratories - working in one of several scientific visualization laboratories (though often a graduate degree is preferred).

Graduate school - continuing studies towards a MS or PhD which opens up other job opportunities including research labs and academic positions.

Required Courses (3 Courses)

- CS 33400 - Fundamentals Of Computer Graphics
- CS 31400 - Numerical Methods
- CS 37300 - Data Mining And Machine Learning or
- CS 43400 - Advanced Computer Graphics or
- CS 47100 - Introduction to Artificial Intelligence

Electives (3 Courses)

Choose three courses:

- CS 35200 - Compilers: Principles And Practice
- CS 35400 - Operating Systems
- CS 37300 - Data Mining And Machine Learning
- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 42200 - Computer Networks
- CS 43400 - Advanced Computer Graphics
- CS 45600 - Programming Languages
- CS 47100 - Introduction to Artificial Intelligence
- CS 49000 - Topics In Computer Sciences For Undergraduates - (IDV Intro to Data Visualization)

Project Option

Electives could include 1 semester of CS 49000 project course with CGVLAB

This option is very useful to undergraduate students involved in research, and such is beneficial to both job-seeking and graduate-school seeking students.

Notes

- All track requirements, regardless of department, must be completed with a grade of C or higher.
- Minimum grade requirement for prerequisites are 'C' unless alternative minimum grade requirement is listed.
- No course can be counted both for a required and elective course within the same track.
- Electives could include one semester of CS 49000 project with CGVLAB with Track Chair approval.

Computer Science Concentration - Database and Information Systems Track (DBIS)

Objectives:

The track is designed to prepare students to become computer scientists who understand and can apply the principles and techniques of database design, algorithms for information retrieval, their strengths and limitations, and tools for the design of databases and information systems.

Required Courses

- CS 34800 - Information Systems
- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 44800 - Introduction To Relational Database Systems
- CS 47300 - Web Information Search And Management or
- CS 37300 - Data Mining And Machine Learning

Electives

Choose one course from each of the following three categories:

Category I - Computing Systems

- CS 35200 - Compilers: Principles And Practice
- CS 35300 - Principles Of Concurrency And Parallelism
- CS 35400 - Operating Systems

Category II - Information Assurance

- CS 35500 - Introduction To Cryptography
- CS 42600 - Computer Security

Category III - Related Studies

- CS 37300 - Data Mining And Machine Learning
- CS 42200 - Computer Networks
- CS 47100 - Introduction to Artificial Intelligence
- CS 47300 - Web Information Search And Management
- CS 47800 - Introduction to Bioinformatics
- CS 48300 - Introduction To The Theory Of Computation
Senior Project Option:
- CS 49000 - Topics In Computer Sciences For Undergraduates - (Senior Project)
or
- EPCS 41100 - Senior Design Participation In EPICS and
- EPCS 41200 - Senior Design Participation In EPICS - (Senior Project)
or
- CS 49700 - Honors Research Project

Notes

- No course may be counted both for a required and elective course within the same track.
- Senior Project (CS 49000/CS 49700) must be taken for at least three credits, be supervised by CS faculty & approved by DBIS track chair.
- All track requirements, regardless of department, must be completed with a grade of C or higher.
- Minimum grade requirement for prerequisites is C unless alternative minimum grade requirement is listed.

Computer Science Concentration - Machine Intelligence Track (MI)

Objectives:

The track is designed to prepare students to work in fields related to management and analysis of data, including areas such as machine learning, information retrieval, and data mining. The track is designed to prepare students to understand, and effectively apply in practice, the principles and techniques of data and knowledge representation, search, as well as learning and reasoning with data.

Required Courses (4 Courses)

- CS 37300 - Data Mining And Machine Learning

- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 47100 - Introduction to Artificial Intelligence or
- CS 47300 - Web Information Search And Management
- STAT 41600 - Probability or
- MA 41600 - Probability or
- STAT 51200 - Applied Regression Analysis

Electives (2 Courses)

- CS 31400 - Numerical Methods
- CS 34800 - Information Systems
- CS 35200 - Compilers: Principles And Practice
- CS 44800 - Introduction To Relational Database Systems
- CS 45600 - Programming Languages
- CS 47100 - Introduction to Artificial Intelligence
- CS 47300 - Web Information Search And Management
- CS 48300 - Introduction To The Theory Of Computation
- CS 49000 - Topics In Computer Sciences For Undergraduates
 - HCI Human Computer Interactions
 - LDA Large-Scale Data Analysis
 - IDV Intro to Data Visualization
- CS 57700 - Natural Language Processing
- CS 57800 - Statistical Machine Learning

Notes

- All track requirements, regardless of department, must be completed with a grade of C or higher.
- Minimum grade requirement for prerequisite is C unless alternative minimum grade requirement is listed.
- No course can be counted both for required and elective within the same track.
- Non-CS courses and graduate level courses may have additional prerequisites that must be met to be eligible to take the course.

Computer Science Concentration - Programming Language Track (PL)

Objectives:

The track is designed to prepare students to work in fields related to program understanding, analysis, manipulation and transformation. This includes run-time system engineering as well as domain specific techniques (e.g., real-time computing or web programming). They will acquire tools and techniques needed to specify and implement language-based solutions.

Required Courses (3 Courses)

- CS 35200 - Compilers: Principles And Practice
- CS 35400 - Operating Systems

- CS 45600 - Programming Languages

Electives (3 Courses)

- CS 35300 - Principles Of Concurrency And Parallelism
- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 42600 - Computer Security
- CS 48300 - Introduction To The Theory Of Computation
- CS 56000 - Reasoning About Programs
- CS 30700 - Software Engineering I or
- CS 40800 - Software Testing
- CS 34800 - Information Systems or
- CS 44800 - Introduction To Relational Database Systems
- MA 45300 - Elements Of Algebra I or
- MA 38500 - Introduction To Logic

Note

- All track requirements, regardless of department, must be completed with a grade of C or higher.
- Minimum grade requirement for prerequisites is C unless alternative minimum grade requirement is listed.

Computer Science Concentration - Security Track

Objectives:

The track is designed to prepare students to become computer scientists who:

- understand the importance of and are capable of designing and developing secure software,
- are familiar with the societal impact of insecure software and related infrastructure, and
- are familiar with and can use techniques for testing and assessing systems for secure operation.

Required Courses (3 Courses)

- CS 35400 - Operating Systems
- CS 35500 - Introduction To Cryptography
- CS 42600 - Computer Security

Electives (3 Courses)

- CS 35200 - Compilers: Principles And Practice
- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 42200 - Computer Networks
- CS 49000 - Topics In Computer Sciences For Undergraduates -SWS

- CS 30700 - Software Engineering I or
- CS 40800 - Software Testing

- CS 34800 - Information Systems or
- CS 44800 - Introduction To Relational Database Systems or
- CS 47300 - Web Information Search And Management
- CS 35300 - Principles Of Concurrency And Parallelism or
- CS 45600 - Programming Languages
- CS 37300 - Data Mining And Machine Learning or
- CS 47100 - Introduction to Artificial Intelligence
- CS 48900 - Embedded Systems or
- CS 49000 - Topics In Computer Sciences For Undergraduates-DSO

Note

- All track requirements, regardless of department, must be completed with a grade of C or higher.
- Minimum grade requirement for prerequisites is C unless alternative minimum grade requirement is listed.
- No course may be counted for both an elective and required course within the same track.

Computer Science Concentration - Software Engineering Track

Objectives:

The track is designed to prepare students to become software engineers who:

- understand and can use the principles and techniques of software engineering essential for the design and development of large software products,
- are familiar with and can effectively use a variety of tools for software analysis, design, testing, and maintenance, and
- can effectively work in teams and communicate orally and in writing.

Required Courses (5 Courses)

- CS 30700 - Software Engineering I
- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 40700 - Software Engineering Senior Project
- CS 40800 - Software Testing
- CS 35200 - Compilers: Principles And Practice or
- CS 35400 - Operating Systems

Electives (2 Courses)

- CS 34800 - Information Systems
- CS 35200 - Compilers: Principles And Practice
- CS 35300 - Principles Of Concurrency And Parallelism
- CS 35400 - Operating Systems
- CS 37300 - Data Mining And Machine Learning

- CS 42200 - Computer Networks
- CS 42600 - Computer Security
- CS 44800 - Introduction To Relational Database Systems
- CS 45600 - Programming Languages
- CS 47300 - Web Information Search And Management
- CS 48900 - Embedded Systems
- CS 49000 - Topics In Computer Sciences For Undergraduates
 - DSO Distributed Systems
 - SWS Software Security
- CS 51000 - Software Engineering
- CS 59000 - Topics In Computer Sciences
 - SRS Software Reliability and Security

Software Engineering Senior Project

- The Software Engineering Senior Project (CS 40700) must be completed in the student's last or next-to-last semester.
- It must be a team project involving 4-6 people.
- CS 30700 is a pre-requisite for the Software Engineering Senior Project.

Notes

- All track requirements, regardless of department, must be completed with a grade of C or higher.
- Minimum grade requirement for prerequisites is C unless alternative minimum grade requirement is listed.
- No course can be counted for both a required and elective course within the same track.

Computer Science Concentration - Systems Software Track

Objectives:

The track is designed to prepare students to become programmers who can build...

- low-level software that uses or runs inside an operating system,
- system tools for other users (e.g., compilers and assemblers),
- programs that communicate over a computer network or the Internet (e.g., web servers).

Required Courses (3 Courses)

- CS 35200 - Compilers: Principles And Practice
- CS 35400 - Operating Systems
- CS 42200 - Computer Networks

Electives (3 Courses)

- CS 30700 - Software Engineering I
- CS 33400 - Fundamentals Of Computer Graphics

- CS 35300 - Principles Of Concurrency And Parallelism
- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 42600 - Computer Security
- CS 44800 - Introduction To Relational Database Systems
- CS 45600 - Programming Languages
- CS 48900 - Embedded Systems
- CS 49000 - Topics In Computer Sciences For Undergraduates
 - DS0 Distributed Systems
 - Senior Project

Notes

- The track has three electives, chosen from the list provided. In addition to elective courses listed, other courses, including project and independent study courses, will be approved as electives, provided the course involves systems programming (as opposed to web page scripting, or other high-level application programming). Faculty strongly recommend that students include a senior project as one of the electives.
- The Software Engineering Senior Project cannot be used as the Systems research project unless track chair approval from both track chairs is obtained.
- All track requirements, regardless of department, must be completed with a grade of C or higher.

Data Science Supplemental Information

CS Electives

Choose two CS Electives from:

- CS 47100 - Introduction to Artificial Intelligence
- CS 47300 - Web Information Search And Management
- CS - 49000-IDV - Introduction to Data Visualization
- CS 30700 - Software Engineering I
 - or
- CS 40800 - Software Testing
- CS 34800 - Information Systems
 - or
- CS 44800 - Introduction To Relational Database Systems
- CS 31400 - Numerical Methods
- CS 38100 - Introduction To The Analysis Of Algorithms
 - or
- CS 48300 - Introduction To The Theory Of Computation
- CS 35500 - Introduction To Cryptography

STAT Elective

- STAT 42000 - Introduction To Time Series
 - MA or STAT - 49000 - Elementary Stochastic Processes
- STAT 50600 - Statistical Programming And Data Management
- STAT 51200 - Applied Regression Analysis

- STAT 51300 - Statistical Quality Control
- STAT 51400 - Design Of Experiments
- STAT 52200 - Sampling And Survey Techniques
- STAT 52500 - Intermediate Statistical Methodology

Capstone Course

For-Credit Option:

- CS or STAT 49000 - Data Science Capstone 3.00
- CS or STAT 49000 - Research Project in Data Science 3.00
- CS 49000-IDV - Introduction to Data Visualization (if taken after CS 37300; could not be used as CS Elective) 3.00
- CS 49700 - Honors Research Project 3.00
- EPICS 41100 - Senior Design Participation In EPICS 1.00 and EPICS 41200 - Senior Design Participation In EPICS 2.00
- CS 30700 - Software Engineering I (if taken after CS 37300; could not be used as CS Elective) 3.00

Zero-Credit Option:

- CS or STAT 38600 - Professional Practice IV 0.00
- CS or STAT 48700 - Professional Practice V 0.00
- CS or STAT 49000 - Research Project in Data Science 0.00

Department of Earth, Atmospheric, and Planetary Sciences

Overview

The Department of Earth, Atmospheric, and Planetary Sciences is dedicated to the scientific study of a myriad of spatial and temporal scales of physical, chemical, and dynamical processes that range from such seemingly diverse events as continental drift to asteroid impacts to tornadoes.

The new millennium has brought even greater challenges to unravel the mysteries of the past, present and future states of a holistic Earth system that affects our socio-economic well-being, as well as the delicate balance of weather, climate, and earth processes.

EAPS is the multidisciplinary department of the College of Science, requiring the use of mathematics, physics, chemistry, statistics, and computer sciences to research problems; along with state of the art computer and laboratory facilities for calculation, visualization, and experimentation. Our faculty, students and staff are dedicated to the department's mission and strategic plan and we hope that you enjoy your virtual tour of our world.

Indrajeet Chaubey
Department Head and Professor

Faculty

Department of Earth, Atmospheric, and Planetary Sciences Website

Contact Information

Earth, Atmospheric, and Planetary Sciences Department
550 Stadium Mall Drive
Purdue University
West Lafayette, IN 47907-2051

Phone: 765 494-3258
Fax: 765 496-1210

Graduate Information

For Graduate Information please see Earth, Atmospheric, and Planetary Sciences Graduate Program Information.

Baccalaureate

Atmospheric Science, BS

About the Program

Atmospheric science focuses on mathematics, physics, chemistry, computer science, and statistics as well as atmospheric science. In this major students have several elective credits which they can use to broaden and enhance their educational experience and to specialize in the areas of weather forecasting, research, environmental monitoring, business, or broadcasting. Students can also participate in real-world forecasting, field work, and related opportunities. Research is an integral part of the program, and the Earth, Atmospheric, and Planetary Sciences (EAPS) Department has an excellent faculty to student ratio which allows students to have one-to-one interaction with their professors.

Atmospheric Science/Meteorology Website

Earth, Atmospheric, and Planetary Sciences Department Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (36 credits)

Required Major Courses

- EAPS 11700 - Introduction To Atmospheric Science ♦ (satisfies Science for core)
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- EAPS 22500 - Science Of The Atmosphere ♦ (satisfies Science for core)
- EAPS 22700 - Introduction To Atmospheric Observation And Measurements
- EAPS 32000 - Physics Of Climate
- EAPS 42100 - Atmospheric Thermodynamics
- EAPS 42200 - Atmospheric Dynamics I
- EAPS 42300 - Atmospheric Dynamics II
- EAPS 43100 - Synoptic Laboratory I
- EAPS 43200 - Synoptic Laboratory II
- EAPS 43300 - Synoptic Lab III
- EAPS 50700 - Introduction To Analysis And Computing With Geoscience Data
- EAPS 53200 - Atmospheric Physics I
- EAPS 10000-level Earth System Selective - Credit Hours: 3.00
- EAPS 40000/50000 Selective - Credit Hours: 3.00

Other Departmental/Program Course Requirements (68-77 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

- FIRST-YEAR COMPOSITION** – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)
- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I

Language/Culture Option II

Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Credit Hours: 8.00 (satisfies Science for core)

Required

- PHYS 17200 - Modern Mechanics (satisfies Science for core) (satisfies Teambuilding & Collaboration Experience for CoS Core)

Choose one option. (PHYS 27200 or PHYS 24100/25200)

- PHYS 27200 - Electric And Magnetic Interactions (satisfies Science for University Core)
- PHYS 24100 - Electricity And Optics (fulfills Science for core)
- PHYS 25200 - Electricity And Optics Laboratory

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I (Student should earn minimum of a C-) or
- MA 16500 - Analytic Geometry And Calculus I (Student should earn minimum of a C-)
- MA 16200 - Plane Analytic Geometry And Calculus II (Student should earn minimum of a C-) or
- MA 16600 - Analytic Geometry And Calculus II (Student should earn minimum of a C-)

STATISTICS - Credit Hours: 3.00

- EAPS 31000 - Introductory Statistics For Geosciences
- STAT 30100 - Elementary Statistical Methods
- STAT 35000 - Introduction To Statistics
- STAT 50300 - Statistical Methods For Biology
- STAT 51100 - Statistical Methods

COMPUTING - Credit Hours: 4.00

- CS 17700 - Programming With Multimedia Objects ♦

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

REQUIRED PRE-REQUISITE COURSES

- MA 26500 - Linear Algebra
- MA 26600 - Ordinary Differential Equations (Student should earn minimum of a C-)
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- CHM 11500 - General Chemistry ♦ (satisfies Science for core) or
- CHM 12500 - Introduction To Chemistry I ♦ (satisfies Science for core)

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (7-16 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Additional Degree Requirements

[Click for Atmospheric Science Supplemental Information.](#)

Program Requirements

Fall 1st Year

- EAPS 11700 - Introduction To Atmospheric Science ♦
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00-4.00

15-17 Credits

Spring 1st Year

- CS 17700 - Programming With Multimedia Objects ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- EAPS 10000-level Earth System Elective - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

15-17 Credits

Fall 2nd Year

- EAPS 22500 - Science Of The Atmosphere ♦
- EAPS 22700 - Introduction To Atmospheric Observation And Measurements
- PHYS 17200 - Modern Mechanics ♦
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

17-18 Credits

Spring 2nd Year

- EAPS 32000 - Physics Of Climate
- MA 26500 - Linear Algebra
- PHYS 27200 - Electric And Magnetic Interactions
- Science Core Selection - Credit Hours: 3.00

13 Credits

Fall 3rd Year

- COM 21700 - Science Writing And Presentation
- EAPS 42100 - Atmospheric Thermodynamics
- EAPS 43100 - Synoptic Laboratory I
- MA 26600 - Ordinary Differential Equations
- Elective - Credit Hours: 3.00

13 Credits

Spring 3rd Year

- EAPS 42200 - Atmospheric Dynamics I
- EAPS 43200 - Synoptic Laboratory II
- EAPS 53200 - Atmospheric Physics I
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Fall 4th Year

- EAPS 42300 - Atmospheric Dynamics II
- EAPS 43300 - Synoptic Lab III
- EAPS 50700 - Introduction To Analysis And Computing With Geoscience Data
- Great Issues In Science Option - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 4th Year

- EAPS 40000/50000 Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Electives - Credit Hours: 3.00
- Electives - Credit Hours: 3.00

15 Credits

Notes

- 2.0 Graduation GPA required for Bachelor of Science degree
- 2.0 average in EAPS major classes required to graduate

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should

know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Environmental Geoscience, BS

About the Program

The EAPS Environmental Geoscience major offers an interdisciplinary curriculum that immerses students in the fundamentals of geology, chemistry, atmospheric science, biology, math, and physics. This coursework prepares students so they can help solve challenging environmental problems such as climate change, emerging pollutants, shrinking and shifting energy resources, food production, and ecology. The Environmental Geoscience major at Purdue is flexible, allowing students to create their own coursework focus based on their particular scientific passion: air quality, soil and sediments, or hydrology. Undergraduate research is required in this major, and students have the opportunity to work directly with professors and industry leaders. Graduates develop quantitative problem-solving skills that make them highly competitive for further graduate school studies related to environmental science or careers in environmental monitoring, consulting, and decision support for environmental public policy.

Environmental Geoscience Website

Earth, Atmospheric, and Planetary Sciences Department Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (54 credits)

Required Major Courses

- AGRY 25500 - Soil Science
- CHM 32100 - Analytical Chemistry I
- EAPS 11800 - Introduction To Earth Sciences ♦
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences
- EAPS 20000 - Water World: Processes And Challenges In Global Hydrology
- EAPS 22500 - Science Of The Atmosphere
- EAPS 24300 - Earth Materials I
- EAPS 31500 - Biogeochemistry
- EEE 36000 - Environmental And Ecological Engineering Laboratory
- ASM 54000 - Geographic Information System Application or
- FNR 21000 - Natural Resource Information Management

- EAPS 10900 - The Dynamic Earth ♦ or
- EAPS 12500 - Environmental Science And Conservation ♦
- AGECE 20400 - Introduction To Resource Economics And Environmental Policy or
- POL 22300 - Introduction To Environmental Policy
- EAPS 38500 - Principles Of Engineering Geology or
- EEE 35500 - Engineering Environmental Sustainability
- EAPS 49700 - Earth And Atmospheric Sciences Undergraduate Readings And Research (Credit Hours: 3.00) or
- EAPS 41900 - Internship In Environmental Geosciences (Credit Hours: 3.00)
- Environmental Selective^ - Credit Hours: 12.00 total

Other Departmental/Program Course Requirements (54-63 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I

Language/Culture Option II

Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Credit Hours: 8.00-10.00 (satisfies Science for core)

- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- CHM 11600 - General Chemistry ♦ or

- CHM 12600 - Introduction To Chemistry II ♦
MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)
- MA 16100 - Plane Analytic Geometry And Calculus I (Student should earn minimum of a C-) or
- MA 16500 - Analytic Geometry And Calculus I (Student should earn minimum of a C-)
- MA 16200 - Plane Analytic Geometry And Calculus II (Student should earn minimum of a C-) or
- MA 16600 - Analytic Geometry And Calculus II (Student should earn minimum of a C-)
STATISTICS - Credit Hours: 3.00
- EAPS 31000 - Introductory Statistics For Geosciences
- STAT 30100 - Elementary Statistical Methods
- STAT 35000 - Introduction To Statistics
- STAT 50300 - Statistical Methods For Biology
- STAT 51100 - Statistical Methods

COMPUTING - Credit Hours: 3.00-4.00

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION^ (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00

General Education Option I

General Education Option II

General Education Option III

REQUIRED PRE-REQUISITE COURSES

Physics Selective - Choose one option.

- PHYS 17200 - Modern Mechanics ♦
- PHYS 22000 - General Physics ♦
- PHYS 23300 - Physics For Life Sciences I ♦ (if two semesters of Biology)

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (3-12 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Additional Degree Requirements

Click for Environmental Geoscience Supplemental Information.

Program Requirements

Fall 1st Year

- EAPS 11800 - Introduction To Earth Sciences ♦
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences
- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00-4.00

15-18 Credits

Spring 1st Year

- CHM 11600 - General Chemistry ♦ or
- CHM 12600 - Introduction To Chemistry II ♦
- EAPS 10900 - The Dynamic Earth ♦ or
- EAPS 12500 - Environmental Science And Conservation ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Elective - Credit Hours: 1.00

15-18 Credits

Fall 2nd Year

- AGRY 25500 - Soil Science
- EAPS 22500 - Science Of The Atmosphere
- EAPS 24300 - Earth Materials I
- Science Core Selection - Credit Hours: 3.00

- Science Core Selection - Credit Hours: 3.00

16-18 Credits

Spring 2nd Year

- EAPS 20000 - Water World: Processes And Challenges In Global Hydrology
- EAPS 31000 - Introductory Statistics For Geosciences or
- STAT 30100 - Elementary Statistical Methods or
- STAT 35000 - Introduction To Statistics or
- STAT 50300 - Statistical Methods For Biology or
- STAT 51100 - Statistical Methods
- PHYS 17200 - Modern Mechanics ♦ or
- PHYS 22000 - General Physics ♦ or
- PHYS 23300 - Physics For Life Sciences I ♦
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- CHM 32100 - Analytical Chemistry I
- EAPS 31500 - Biogeochemistry
- EEE 36000 - Environmental And Ecological Engineering Laboratory
- EAPS 38500 - Principles Of Engineering Geology or
- EEE 35500 - Engineering Environmental Sustainability

13 Credits

Spring 3rd Year

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- AGECE 20400 - Introduction To Resource Economics And Environmental Policy or
- POL 22300 - Introduction To Environmental Policy
- Environmental Selective - Credit Hours 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- COM 21700 - Science Writing And Presentation

- ASM 54000 - Geographic Information System Application or
- FNR 21000 - Natural Resource Information Management
- Environmental Selective - Credit Hours: 3.00 ^
- Environmental Selective - Credit Hours: 3.00 ^
- Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- EAPS 49700 - Earth And Atmospheric Sciences Undergraduate Readings And Research or
- EAPS 41900 - Internship In Environmental Geosciences
- Great Issues In Science Selective - Credit Hours 3.00
- Environmental Selective - Credit Hours 3.00
- Science Core Selection - Credit Hours 3.00

12 Credits

Notes

- ^Environmental Selectives for advanced courses and specializations
- ^^Environmental Selectives with Labs for advanced courses and specializations
- 2.0 Graduation GPA required for Bachelor of Science degree
- 2.0 average in EAPS major courses required to graduate

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should

know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Geology and Geophysics, BS

About the Program

Within the geology and geophysics major, students study math, chemistry, physics, and enroll in coursework in physical and historical geology, earth materials, surface processes, plate tectonics, structural geology, sedimentation and stratigraphy, computer-aided analysis, field methods, and a summer geology field camp. Students have a number of electives which can be used to take advanced coursework in seismology, crustal tectonics, engineering geology, hydrogeology, and a wide variety of other topics relevant to geologists. Faculty led classes, labs, and field experiences as well as undergraduate research (encouraged) are all components of this program.

Geology and Geophysics Website

Earth, Atmospheric, and Planetary Sciences Department Major Change (CODO) Requirements

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Degree Requirements

120 Credits Required

Departmental/Program Major Courses (48 credits)

Required Major Courses (48 credits)

- EAPS 11800 - Introduction To Earth Sciences ♦
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- EAPS 24300 - Earth Materials I ♦ (satisfies Science for core)
- EAPS 30900 - Computer-Aided Analysis For Geosciences
- EAPS 35200 - Structural Geology
- EAPS 35300 - Earth Surface Processes
- EAPS 35400 - Plate Tectonics
- EAPS 39000 - Geologic Field Methods
- EAPS 47400 - Sedimentation And Stratigraphy
- EAPS 10900 - The Dynamic Earth ♦ (satisfies Science for core) or
- EAPS 11200 - Earth Through Time ♦ (satisfies Science for core)
- EAPS 49000 - Field Geology In Rocky Mountains or
- EAPS 3XXXXX Geology Field Experience (Transfer Course)
- EAPS Professional Elective (EAPS 30000:59900) - Credit Hours: 3.00
- EAPS Professional Elective (EAPS 30000:59900) - Credit Hours: 3.00

- Science/Engineering Elective (Level 20000:59900) -Credit Hours: 3.00
- Science/Engineering Elective (Level 20000:59900) - Credit Hours: 3.00

Other Departmental/Program Course Requirements (51-72 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
 Language/Culture Option II
 Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Credit Hours: 8.00 (satisfies Science for core)

- PHYS 17200 - Modern Mechanics ♦ or
 - PHYS 22000 - General Physics ♦
 - PHYS 22100 - General Physics or
 - PHYS 27200 - Electric And Magnetic Interactions or
 - PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- MATHEMATICS** - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)
- MA 16100 - Plane Analytic Geometry And Calculus I (Student should earn minimum of a C-) or
 - MA 16500 - Analytic Geometry And Calculus I (Student should earn minimum of a C-)
 - MA 16200 - Plane Analytic Geometry And Calculus II (Student should earn minimum of a C-) or
 - MA 16600 - Analytic Geometry And Calculus II (Student should earn minimum of a C-)
- STATISTICS** - Credit Hours: 3.00
- EAPS 31000 - Introductory Statistics For Geosciences or
 - STAT 30100 - Elementary Statistical Methods or
 - STAT 35000 - Introduction To Statistics or
 - STAT 50300 - Statistical Methods For Biology or
 - STAT 51100 - Statistical Methods
- COMPUTING** - Credit Hours: 3.00-4.00
- CS 15900 - C Programming ♦ or
 - CS 17700 - Programming With Multimedia Objects ♦ or

- CS 18000 - Problem Solving And Object-Oriented Programming ♦
GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00
 General Education Option I
 General Education Option II
 General Education Option III
REQUIRED PRE-REQUISITE COURSES - Credit Hours: 8.00-10.00
- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- CHM 11600 - General Chemistry or
- CHM 12600 - Introduction To Chemistry II
[^]Labeled as a Science Core Selection in the four year plan of study
 *Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (5-14 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- EAPS 11800 - Introduction To Earth Sciences ♦
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- MA 16100 - Plane Analytic Geometry And Calculus I (Student should earn minimum of a C-) or
- MA 16500 - Analytic Geometry And Calculus I (Student should earn minimum of a C-)

- Science Core Selection - Credit Hours: 3.00-4.00

15-18 Credits

Spring 1st Year

- CHM 11600 - General Chemistry or
- CHM 12600 - Introduction To Chemistry II
- EAPS 11200 - Earth Through Time ♦ or
- EAPS 10900 - The Dynamic Earth ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II (Student should earn minimum of a C-) or
- MA 16600 - Analytic Geometry And Calculus II (Student should earn minimum of a C-)

14-17 Credits

Fall 2nd Year

- EAPS 24300 - Earth Materials I ♦
- PHYS 17200 - Modern Mechanics ♦ or
- PHYS 22000 - General Physics ♦
- Science Core Selection - Credit Hours: 3.00-4.00
- Science/Engineering Elective (Level 20000 to 59900) - Credit Hours: 3.00

14 Credits

Spring 2nd Year

- EAPS 35400 - Plate Tectonics
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 22100 - General Physics or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- Science/Engineering Elective (Level 20000 to 59900) - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

15 Credits

Fall 3rd Year

- EAPS 35300 - Earth Surface Processes
- EAPS 47400 - Sedimentation And Stratigraphy

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Science Core Selection - Credit Hours: 3.00

13-14 Credits

Spring 3rd Year

- EAPS 30900 - Computer-Aided Analysis For Geosciences
- EAPS 35200 - Structural Geology
- EAPS 39000 - Geologic Field Methods
- EAPS 31000 - Introductory Statistics For Geosciences or
- STAT 30100 - Elementary Statistical Methods or
- STAT 35000 - Introduction To Statistics or
- STAT 50300 - Statistical Methods For Biology or
- STAT 51100 - Statistical Methods
- Team-Building & Collaboration - Credit Hours: 3.00

15 Credits

Summer 3rd Year

- EAPS 49000 - Field Geology In Rocky Mountains or
- EAPS 3XXXX - Geology Field Experience (Transfer Course) - Credit Hours: 6.00

6 Credits

Fall 4th Year

- EAPS Professional Elective (EAPS 30000:59900) - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Great Issues In Science - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- COM 21700 - Science Writing And Presentation
- EAPS Professional Elective (EAPS 30000:59900) - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

12 Credits

Notes

- 2.0 Graduation GPA required for Bachelor of Science degree
- 2.0 average in EAPS major classes required to graduate

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Planetary Sciences, BS

About the Program

Planetary sciences is a multidisciplinary study of planetary dynamics and includes course work in planetary geology, planetary atmospheres, planetary physics, spacecraft design and operation, and astronomy with elective options in astrobiology, impact cratering, and related topics with which to focus their study. All students receive a strong background in math, chemistry, physics, computer science, geophysics, and remote sensing and are encouraged to get involved in undergraduate research in this unique program.

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (40 credits)

Required Major Courses (22 credits)

- ASTR 36300 - The Solar System
- EAPS 10500 - The Planets ♦ (satisfies Science for core)
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- EAPS 39500 - Astrobiology
- EAPS 44500 - Spacecraft Design
- EAPS 55600 - Planetary Geology
- EAPS 11700 - Introduction To Atmospheric Science ♦ (satisfies Science for core) or
- EAPS 11800 - Introduction To Earth Sciences ♦
- EAPS 30900 - Computer-Aided Analysis For Geosciences or
- EAPS 57700 - Remote Sensing Of The Planets

EAPS Selective (3 credits)

- Choose an EAPS course not taken above.
- EAPS 10000:59900 - (could satisfy Science, Technology, & Society for core) - Credit Hours: 3.00

Planetary Science Selectives (9 credits)

Choose 9 credits from this list: Planetary Science Supplemental Information. One course cannot be used to meet both Major Course and Planetary Science Selective.

^Science/Engineering Selectives (6 credits)

Please choose from the following:

AAE 10000:59999	BME 10000:59999	EAPS 10000:59999	ME 10000:59999
ABE 10000:59999	CE 10000:59999	EEE 10000:59999	MSE 10000:59999
AGRY 10000:59999	CHE 10000:59999	FNR 10000:59999	NUCL 10000:59999
ASTR 10000:59999	CHM 10000:59999	IDE 10000:59999	PHYS 20000:59999
BIOL 10000:59999	CS 10000:59999	MA 30000:59999	STAT 30000:59999

Except:

ASTR 36300	CHM 11600	EAPS 55600	PHYS 24100
BIOL 20300	CHM 13600	PHYS 21400	PHYS 25200
BIOL 20400	CS 15800	PHYS 21800	PHYS 27200
CHM 111000	CS 17700	PHYS 21900	STAT 30100
CHM 11200	EAPS 10500	PHYS 22000	STAT 35000
CHM 11500	EAPS 39100	PHYS 22100	STAT 50300
			STAT 51100

Other Departmental/Program Course Requirements (53-80 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
 Language/Culture Option II
 Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE[^] – Credit Hours: 8.00 (satisfies Science for core)

- PHYS 17200 - Modern Mechanics ♦
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 Electricity And Optics Laboratory

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I (Student should earn minimum of a C-) or
- MA 16500 - Analytic Geometry And Calculus I (Student should earn minimum of a C-)
- MA 16200 - Plane Analytic Geometry And Calculus II (Student should earn minimum of a C-) or
- MA 16600 - Analytic Geometry And Calculus II (Student should earn minimum of a C-)

STATISTICS - Credit Hours: 3.00

- EAPS 31000 - Introductory Statistics For Geosciences
- STAT 30100 - Elementary Statistical Methods
- STAT 35000 - Introduction To Statistics
- STAT 50300 - Statistical Methods For Biology
- STAT 51100 - Statistical Methods
- **COMPUTING** - Credit Hours: 3.00-4.00
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- **GENERAL EDUCATION**^ (Select courses COULD satisfy Behavioral/Social Science for core) - Credit Hours: 9.00
 - General Education Option I
 - General Education Option II
 - General Education Option III
- **REQUIRED PRE-REQUISITE COURSES** - Credit Hours: 16.00-18.00
- MA 26100 - Multivariate Calculus (Student should earn minimum of a C-)
- MA 26200 - Linear Algebra And Differential Equations
- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- CHM 11600 - General Chemistry ♦ or
- CHM 12600 - Introduction To Chemistry II ♦

Electives (0-27 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click here.

Program Requirements

Fall 1st Year

- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- CHM 11500 - General Chemistry ♦ or
- CHM 12500 - Introduction To Chemistry I ♦
- EAPS 11700 - Introduction To Atmospheric Science ♦ or
- EAPS 11800 - Introduction To Earth Sciences ♦
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00-4.00

15-18 Credits

Spring 1st Year

- EAPS 10500 - The Planets ♦
- CHM 11600 - General Chemistry ♦ or
- CHM 12600 - Introduction To Chemistry II ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Elective - Credit Hours: 1.00

15-18 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus
- PHYS 17200 - Modern Mechanics ♦
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

14 Credits

Spring 2nd Year

- MA 26200 - Linear Algebra And Differential Equations
- PHYS 27200 - Electric And Magnetic Interactions or
- PHYS 24100 - Electricity And Optics and PHYS 25200 - Electricity And Optics Laboratory
- EAPS Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

17 Credits

Fall 3rd Year

- ASTR 36300 - The Solar System
- EAPS 55600 - Planetary Geology
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Planetary Science Selective^ - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- COM 21700 - Science Writing And Presentation
- EAPS 31000 - Introductory Statistics For Geosciences or
- STAT 30100 - Elementary Statistical Methods or
- STAT 35000 - Introduction To Statistics or
- STAT 50300 - Statistical Methods For Biology or
- STAT 51100 - Statistical Methods
- Planetary Science Selective^ - Credit Hours: 3.00
- Great Issues In Science Selective - Credit Hours: 3.00
- Science/Engineering Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- EAPS 39500 - Astrobiology
- Planetary Science Elective^ - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- EAPS 44500 - Spacecraft Design
- EAPS 30900 - Computer-Aided Analysis For Geosciences or
- EAPS 57700 - Remote Sensing Of The Planets
- Science/Engineering Elective - Credit Hours: 3.00
- Electives - Credit Hours 4.00

13 Credits

Notes

- ^Planetary Science Selectives for advanced courses and specializations
- 2.0 Graduation GPA required for Bachelor of Science degree
- 2.0 average in EAPS major courses required to graduate

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Earth, Atmospheric, and Planetary Sciences Minor

Requirements for the Minor (18 credits)

Required Course (3 credits)

- EAPS 10900 - The Dynamic Earth or
- EAPS 11700 - Introduction To Atmospheric Science or

- EAPS 11800 - Introduction To Earth Sciences

Additional EAPS Coursework (15 credits)

- One EAPS 10000-level or higher course - Credit Hours: 3.00
- One EAPS 20000-level or higher course - Credit Hours: 3.00
- Three EAPS 30000-level or higher courses - Credit Hours: 9.00

Notes

- Credit allowed in no more than one EAPS 30100, EAPS 32700, EAPS 37500, EAPS 36000, or EAPS 36400 towards minor requirements
- No credit allowed in any EAPS 19100, EAPS 39100, or EAPS 59100 towards minor requirements
- No more than three (3) credits of EAPS EAPS 49700 towards minor requirements
- All courses for this minor must be taken at Purdue University West Lafayette

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Program Information

Atmospheric Science Supplemental Information

EAPS 400/500 Selective

- EAPS 43400 - Weather Analysis And Forecasting
- EAPS 49700 - Earth And Atmospheric Sciences Undergraduate Readings And Research
- EAPS 51500 - Geodata Science
- EAPS 52000 - Theory Of Climate
- EAPS 52100 - Atmospheric Chemistry
- EAPS 52300 - Radar Meteorology
- EAPS 52500 - Boundary Layer Meteorology
- EAPS 53000 - Extreme Weather And Climate: Science And Risk
- EAPS 53400 - Tropical Meteorology
- EAPS 53600 - Introduction To General Circulation
- EAPS 53900 - Mesoscale Meteorology

Environmental Geoscience Supplemental Information

Environmental Selectives (12 Credits)

- AGRY 33700 - Environmental Hydrology
- AGRY 38500 - Environmental Soil Chemistry
- CE 54200 - Hydrology
- EAPS 22700 - Introduction To Atmospheric Observation And Measurements
- EAPS 35300 - Earth Surface Processes
- EAPS 50700 - Introduction To Analysis And Computing With Geoscience Data
- EAPS 51800 - Soil Biogeochemistry
- EAPS 52100 - Atmospheric Chemistry
- EAPS 58400 - Hydrogeology
- ENGL 39300 - Interdisciplinary Approaches To Environmental And Sustainability Studies
- MA 26100 - Multivariate Calculus
- EAPS 38500 - Principles Of Engineering Geology or
- EEE 35500 - Engineering Environmental Sustainability
(one course cannot be used to meet both Major Course and Environmental Selective)

Planetary Science Supplemental Information

Planetary Science Selectives (9 Credits)

- EAPS 30900 - Computer-Aided Analysis For Geosciences
- EAPS 32000 - Physics Of Climate
- EAPS 35200 - Structural Geology
- EAPS 35300 - Earth Surface Processes
- EAPS 35400 - Plate Tectonics
- EAPS 39000 - Geologic Field Methods
- EAPS 42100 - Atmospheric Thermodynamics
- EAPS 42200 - Atmospheric Dynamics I
- EAPS 42300 - Atmospheric Dynamics II
- EAPS 43100 - Synoptic Laboratory I
- EAPS 43200 - Synoptic Laboratory II
- EAPS 43300 - Synoptic Lab III
- EAPS 44000 - Geochemistry Of Earth Elements
- EAPS 47400 - Sedimentation And Stratigraphy
- EAPS 49000 - Field Geology In Rocky Mountains
- EAPS 57700 - Remote Sensing Of The Planets

Department of Mathematics

Overview

The Department of Mathematics is one of seven departments making up Purdue's College of Science. The Department has an international reputation as an outstanding center for mathematical education, scholarship and research. Together with visiting researchers, its 65 professors provide it with active involvement in current developments in many major areas of mathematics. Faculty research interests can be found in the Faculty Research Areas list or in our Faculty directory.

The Department offers the Bachelor of Science, Master of Science and Doctor of Philosophy degrees. Also, the Department is closely associated with other programs, including Actuarial Science, Statistics, and Computer Science.

Please explore our website or contact us directly for more information about our undergraduate or graduate programs, faculty, research, job opportunities or information on how to support us. The annual department newsletter, PURview, is a good place to read about Departmental news.

Actuarial Science Program

The Purdue Actuarial Science Program is an interdisciplinary program offered jointly by the Department of Mathematics and Department of Statistics.

The program offers a major in Actuarial Science that prepares students for an actuarial career as well as providing complete preparation for the first five exams set by the Society of Actuaries and the Casualty Actuarial Society. Students receive an Actuarial Science Degree, a Statistics Degree, and a Management Minor. We do not offer graduate degrees in Actuarial Science. For more information contact Julie Morris.

Faculty

Department of Mathematics

Program Information

- [Admissions Information \(Includes application forms and online application\)](#)
- [Actuarial Sciences Faculty](#)
- [Purdue Exam Awards \(and Application\)](#)
- [SOA Exam Applications](#)
- [Purdue Actuarial Club](#)

Links

- [BeAnActuary.org](#)
- [Actuary.com](#)
- [Society of Actuaries](#)
- [Casualty Actuarial Society](#)
- [American Academy of Actuaries](#)
- [Conference of Consulting Actuaries](#)
- [American Society of Pension Professionals & Actuaries](#)
- [Canadian Institute of Actuaries](#)
- [Institute of Actuaries \(UK\)](#)
- [International Actuarial Association \(IAA\)](#)
- [Purdue Department of Statistics](#)
- [Purdue Department of Mathematics](#)
- [Undergraduate Mathematics Information](#)
- [Undergraduate Statistics Information](#)

Contact Information

The Department's Main Office (Room 835 of the MATH building) is open from eight am to five pm on all weekdays, except University holidays. The main office is closed from 12 to 1 p.m. in the summer. A phone number for the department is (765) 494-1901. The full address is:

Department of Mathematics
Purdue University
150 North University Street
West Lafayette, Indiana 47907-2067

Graduate Information

For Graduate Information please see Mathematics Graduate Program Information .

Baccalaureate

Actuarial Science Honors, BS

About the Program

Actuarial Science is a joint program of Mathematics and Statistics that emphasizes course work in Mathematics, Statistics, Economics, and Management. Students can prepare for four to five of the nine course exams to become an actuary and also will be eligible for all three VEEs (Validation by Educational Experience) upon successful completion of all required and recommended courses. In addition, students also earn a second major in Statistics and most also earn a minor in Management.

Actuarial Science Website

Actuarial Science Major Change (CODO) Requirements (Students must first CODO into Actuarial Science before Honors.)

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Degree Requirements

120 Credits Required

Departmental/Program Requirements (51 credits)

Required Major Courses (51 credits)

- *Earn a cumulative GPA of at least 3.30.*
- *Earn at least a "B-" in each of the following classes: ECON 25100, ECON 25200, MGMT 31000, and MGMT 41100.*
- *Earn a minimum GPA of 3.5 in the following set of classes: STAT 41700, STAT 47201, STAT 47301, STAT 47901 (marked with a *).*
- *Earn grades of at least "B" in all of the MA and STAT classes in **Required Major Courses**.*

- Earn a 2.50 GPA among required MA/STAT/MGMT/ECON classes in **Required Major Courses**.
- Pass the 2 SOA exams.
- ECON 25100 - Microeconomics (satisfies General Education Option for College of Science Core)
- ECON 25200 - Macroeconomics (satisfies Behavioral/Social Science for core)
- MA 35100 - Elementary Linear Algebra
- MA 36600 - Ordinary Differential Equations
- MA 37300 - Financial Mathematics (students SHOULD earn a C or better) (satisfies Multidisciplinary Experience for College of Science Core)
- MGMT 20000 - Introductory Accounting
- MGMT 20100 - Management Accounting I
- MGMT 31000 - Financial Management
- MGMT 41100 - Investment Management - Honors Investment Management is required if offered.
- STAT 41700 - Statistical Theory *
- STAT 42000 - Introduction To Time Series
- STAT 47201 - Actuarial Models- Life Contingencies * (satisfies Team-Building & Collaboration for College of Science core)
- STAT 47301 - Introduction To Arbitrage-Free Pricing Of Financial Derivatives *
- STAT 47901 - Short Term Actuarial Models *
- STAT 51200 - Applied Regression Analysis
- MA 41600 - Probability or
- STAT 41600 - Probability (students SHOULD earn a C or better in their Probability course)

Program Requirement (0 credits)

Documentation of passing two exams given by the Society of Actuaries

- Exam 1 - Credit Hours: 0.00
- Exam 2 - Credit Hours: 0.00

Other Departmental Course Requirements (36-61 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

- **FIRST-YEAR COMPOSITION** - Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)
 - ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- **TECHNICAL WRITING & PRESENTATION*** - Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for University Core; COM 21700 is suggested.)
- **TEAM-BUILDING & COLLABORATION*** - Credit Hours: 0.00 (*fulfilled by STAT 47201 in major*)
- **LANGUAGE & CULTURE^*** - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)
 - Language/Culture Option I
 - Language/Culture Option II

Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 (*fulfilled by MA 37300 in major*)

LABORATORY SCIENCE[^] - Credit Hours: 6.00-8.00 (satisfies Science for core)

Laboratory Science Option I

Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I

- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit Hours: 3.00

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦

COMPUTING - Credit Hours: 3.00-4.00

- CNIT 17500 - Visual Programming ♦ or
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION[^] - Credit Hours: 9.00 (Select courses COULD satisfy Science, Technology, and Society for core.)

ECON 25100 (*fulfilled in major*)

General Education Option II

General Education Option III

REQUIRED PRE-REQUISITE COURSES

(Calculus III Option)

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus

[^]Labeled as a Science Core Selection in the four year plan of study.

^{*}Requirement may be met with a zero credit experiential learning option. See your advisor for more information.

Electives (8-33 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- ECON 25100 - Microeconomics
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00-4.00
- Elective (MA 17000 or STAT 17000 strongly recommended) - Credit Hours: 2.00
- Elective (STAT 10100 or MA 10800 recommended) - Credit Hours: 1.00

16-18 Credits

Spring 1st Year

- MA 37300 - Financial Mathematics
- CNIT 17500 - Visual Programming ♦ or
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00-4.00

- Elective - Credit Hours: 0.00-2.00

15-16 Credits

Fall 2nd Year

- ECON 25200 - Macroeconomics
- MGMT 20000 - Introductory Accounting
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00-4.00

16-18 Credits

Spring 2nd Year

- COM 21700 - Science Writing And Presentation
- MA 35100 - Elementary Linear Algebra
- MGMT 20100 - Management Accounting I
- MA 41600 - Probability or
- STAT 41600 - Probability
- Elective - Credit Hours: 3.00 (recommend STAT 25000)

15 Credits

Fall 3rd Year

- STAT 47301 - Introduction To Arbitrage-Free Pricing Of Financial Derivatives •
- STAT 41700 - Statistical Theory •
- MGMT 31000 - Financial Management
- Science Core Selection - Credit Hours: 3.00-4.00
- Science Core Selection - Credit Hours: 3.00-4.00

15-17 Credits

Spring 3rd Year

- STAT 47901 - Short Term Actuarial Models •
- STAT 51200 - Applied Regression Analysis
- MGMT 41100 - Investment Management - Honors Investment Management is required if offered.
- Science Core Selection - Credit Hours: 3.00-4.00
- Science Core Selection - Credit Hours: 3.00-4.00

16-18 Credits

Fall 4th Year

- STAT 47201 - Actuarial Models- Life Contingencies •
- MA 36600 - Ordinary Differential Equations
- Great Issues In Science Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

16 Credits

Spring 4th Year

- STAT 42000 - Introduction To Time Series
- STAT 47500 - Life Contingencies II
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

15 Credits

Notes

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Actuarial Science, BS

About the Program

Actuarial Science is a joint program of Mathematics and Statistics that emphasizes course work in Mathematics, Statistics, Economics, and Management. Students can prepare for four to five of the nine course exams to become an actuary and also will be eligible for all three VEEs (Validation by Educational Experience) upon successful completion of all required and recommended courses. In addition, students also earn a second major in Statistics and most also earn a minor in Management.

Actuarial Science Website

Actuarial Science Major Change (CODO) Requirements

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Degree Requirements

120 Credits Required

Departmental/Program Major Courses (49 credits)

Required Major Courses

2.5 average GPA in **Required Major Courses**

- ECON 25100 - Microeconomics (satisfies General Education for College of Science core)
- ECON 25200 - Macroeconomics
- MA 35100 - Elementary Linear Algebra
- MA 36600 - Ordinary Differential Equations

- MA 37300 - Financial Mathematics (students SHOULD earn a C or better) (satisfies Multidisciplinary Experience for College of Science Core)
- MGMT 20000 - Introductory Accounting
- MGMT 20100 - Management Accounting I
- MGMT 31000 - Financial Management
- STAT 41700 - Statistical Theory
- STAT 42000 - Introduction To Time Series
- STAT 47201 - Actuarial Models- Life Contingencies (meets Teamwork for College of Science Core)
- STAT 47301 - Introduction To Arbitrage-Free Pricing Of Financial Derivatives
- STAT 47901 - Short Term Actuarial Models
- STAT 51200 - Applied Regression Analysis (students SHOULD earn a C or better)
- MA 41600 - Probability or
- STAT 41600 - Probability (students SHOULD earn a C or better)

Other Departmental/Program Course Requirements (39-67 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION* - Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 recommended.)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00 (*fulfilled by STAT 47201 in major*)

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (*fulfilled by MA 37300 in major*)

LABORATORY SCIENCE[^] - Credit Hours: 6.00-8.00 (satisfies Science for core)

- Laboratory Science Option I
- Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit Hours: 3.00

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
COMPUTING - Credit Hours: 3.00-4.00
- CNIT 17500 - Visual Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
GENERAL EDUCATION[^] - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science and Science, Technology, and Society for core)
 - General Education Option I (*fulfilled by ECON 25100 in major*)
 - General Education Option II
 - General Education Option III

REQUIRED PRE-REQUISITE COURSES

- MA 26100 - Multivariate Calculus or
 - MA 27101 - Honors Multivariate Calculus
- [^] Labeled as a Science Core Selection in the four year plan of study
- *Requirement may be met with a zero credit experiential learning option. See your advisor for more information.

Electives (4-32 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- ECON 25100 - Microeconomics
 - MA 16100 - Plane Analytic Geometry And Calculus I or
 - MA 16500 - Analytic Geometry And Calculus I
 - ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - HONR 19903 - Interdisciplinary Approaches In Writing or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
-
- Science Core Selection - Credit Hours: 3.00 - 4.00
 - Elective - Credit Hours: 2.00 (MA 17000 or STAT 17000 strongly recommended)
 - Elective - Credit Hours: 1.00 (MA 10800 or STAT 10100 strongly recommended)

15-18 Credits

Spring 1st Year

- MA 37300 - Financial Mathematics
- CNIT 17500 - Visual Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- ECON 25200 - Macroeconomics
- MGMT 20000 - Introductory Accounting
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
- Science Core Selection - Credit Hours: 3.00 - 4.00

16-18 Credits

Spring 2nd Year

- COM 21700 - Science Writing And Presentation
- MA 35100 - Elementary Linear Algebra
- MGMT 20100 - Management Accounting I
- MA 41600 - Probability or
- STAT 41600 - Probability
- Elective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- STAT 47301 - Introduction To Arbitrage-Free Pricing Of Financial Derivatives
- STAT 41700 - Statistical Theory
- MGMT 31000 - Financial Management
- Science Core Selection - Credit Hours: 3.00-4.00
- Science Core Selection - Credit Hours: 3.00-4.00

15-17 Credits

Spring 3rd Year

- STAT 47901 - Short Term Actuarial Models
- STAT 51200 - Applied Regression Analysis
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16-17 Credits

Fall 4th Year

- MA 36600 - Ordinary Differential Equations
- STAT 47201 - Actuarial Models- Life Contingencies
- Great Issues In Science - Credit Hours: 3.00
- Elective - Credit Hours: 4.00

15 Credits

Spring 4th Year

- STAT 42000 - Introduction To Time Series
- Elective - Credit Hours: 2.00 (STAT 47500 strongly recommended)
- Elective - Credit Hours: 10.00

15 Credits

Notes

- Students must earn a 2.5 average GPA in **Required Major Courses**
- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Applied Mathematics, BS

About the Program

Math students enjoy a great deal of personal attention. Most math classes for math majors are 40 students or less, and many upper-level classes have fewer than 25 students. In addition, the math curriculum is flexible enough that students can take classes in other interest areas or pursue double major or a minor without too much difficulty. Math specializations include:

- Applied mathematics
- Business mathematics
- Mathematics
- Mathematics teaching
- Mathematics with computer sciences option
- Mathematics with statistics option
- Operations research

Important note: When applying for any specialization within Mathematics, select "Mathematics" as your major. You will have the opportunity to specialize as you progress through the curriculum.

Mathematics Website

Applied Mathematics Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete

minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses

Required Major Courses (31 credits)

Average GPA in courses must be 2.00 in **Required Major Courses**.

- CS 31400 - Numerical Methods
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- MA 35100 - Elementary Linear Algebra (students SHOULD earn a B- or better)
- MA 35301 - Linear Algebra II
- MA 36600 - Ordinary Differential Equations
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- MA 45300 - Elements Of Algebra I or
- MA 45000 - Algebra Honors

Advanced Calculus Selective (3 credits)

- MA 36200 - Topics In Vector Calculus or
- MA 44200 - Honors Real Analysis II

Applied Math Selective (3 credits)

- MA 42500 - Elements Of Complex Analysis or
- MA 42800 - Introduction To Fourier Analysis or
- MA 52300 - Introduction To Partial Differential Equations

Math/Statistics Selective (3 credits)

- MA 41600 - Probability or
- STAT 41600 - Probability or
- STAT 51600 - Basic Probability And Applications or
- MA 37500 - Introduction To Discrete Mathematics or
- MA 42500 - Elements Of Complex Analysis or
- MA 42800 - Introduction To Fourier Analysis

Other Departmental/Program Course Requirements (39-67 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

- **FIRST-YEAR COMPOSITION** - Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)
 - ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- **TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 COM 21700 - Science Writing And Presentation strongly recommended)
- **TEAM-BUILDING & COLLABORATION*** - Credit Hours: 0.00 - 3.00
- **LANGUAGE & CULTURE^{^*}** - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)
 - Language/Culture Option I
 - Language/Culture Option II
 - Language/Culture Option III
- **GREAT ISSUES IN SCIENCE** - Credit Hours: 3.00
- **MULTIDISCIPLINARY EXPERIENCE^{^*}** - Credit Hours: 0.00 - 3.00 (*fulfilled by CS 31400 in major*)
- **LABORATORY SCIENCE[^]** - Credit Hours: 6.00-8.00 (satisfies Science for core)
 - Laboratory Science Option I
 - Laboratory Science Option II
- **MATHEMATICS** - Credit Hours: 8.00 - 10.00 (satisfies Quantitative Reasoning for core)
 - MA 16100 - Plane Analytic Geometry And Calculus I (students SHOULD earn a B- or better) or
 - MA 16500 - Analytic Geometry And Calculus I (students SHOULD earn a B- or better)
 - MA 16200 - Plane Analytic Geometry And Calculus II or
 - MA 16600 - Analytic Geometry And Calculus II

- **STATISTICS** - Credit Hours: 3.00
 - STAT 35000 - Introduction To Statistics ♦ or
 - STAT 35500 - Statistics For Data Science ♦
 - **COMPUTING** - Credit Hours: 3.00-4.00
 - CS 17700 - Programming With Multimedia Objects ♦ or
 - CS 15900 - C Programming ♦ or
 - CS 18000 - Problem Solving And Object-Oriented Programming ♦
 - **GENERAL EDUCATION**[^] - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science and Science, Technology & Society for core)
 - General Education Option I
 - General Education Option II
 - General Education Option III
 - **REQUIRED PRE-REQUISITE COURSES** - Credit Hours: 4.00-5.00 (Calculus III Option)
 - MA 26100 - Multivariate Calculus or
 - MA 27101 - Honors Multivariate Calculus
- [^] Labeled as a Science Core Selection in the four year plan of study
- *Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (22-50 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 1.00 (MA 10800 - Mathematics As A Profession And A Discipline strongly recommended)
- Electives - Credit Hours: 4.00

15-18 Credits

Spring 1st Year

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 3.00
- Electives - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00 (MA 30100 recommended)
- Elective - Credit Hours: 2.00

15-18 Credits

Spring 2nd Year

- COM 21700 - Science Writing And Presentation
- MA 35100 - Elementary Linear Algebra
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-16 Credits

Fall 3rd Year

- CS 31400 - Numerical Methods
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-17 Credits

Spring 3rd Year

- MA 35301 - Linear Algebra II
- MA 36600 - Ordinary Differential Equations
- MA 36200 - Topics In Vector Calculus or
- MA 44200 - Honors Real Analysis II

- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

16-17 Credits

Fall 4th Year

- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- MA 45300 - Elements Of Algebra I or
- MA 45000 - Algebra Honors
- Team-Building and Collaboration Option - Credit Hours: 3.00
- Great Issues In Science Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- MA 42500 - Elements Of Complex Analysis or
- MA 42800 - Introduction To Fourier Analysis or
- MA 52300 - Introduction To Partial Differential Equations
- Math/Statistics Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Note

- Average GPA in courses must be 2.00 in **Required Major Courses**.
- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Mathematics Education, BS

About the Program

Math students enjoy a great deal of personal attention. Most math classes for math majors have 40 or fewer students, and many upper-level classes have fewer than 25 students. In addition, the math curriculum is flexible enough that students can take classes in other interest areas or pursue a double major or a minor without too much difficulty. Math specializations include:

- Applied mathematics
- Business mathematics

- Mathematics
- Mathematics teaching
- Mathematics with computer science option
- Mathematics with statistics option
- Operations research

Important note: When applying for any specialization within Mathematics, select "Mathematics" as your major. You will have the opportunity to specialize as you progress through the curriculum.

Mathematics Website

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

1. Major
2. Science Core Curriculum
3. Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science

- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (77-81 credits)

Required Major Courses (40-44 credits)

CONTENT COURSES

Average GPA in courses must be 2.50 or higher in **Required Major Courses**. (higher of grade between STAT 35000 and MA 48400 is used)

- MA 35100 - Elementary Linear Algebra (student SHOULD earn a B- or better)
- MA 36600 - Ordinary Differential Equations
- MA 37500 - Introduction To Discrete Mathematics
- MA 46000 - Geometry
- MA 48400 - Seminar On Teaching College Algebra And Trigonometry
- STAT 31100 - Introductory Probability
- STAT 35000 - Introduction To Statistics ♦
- MA 30100 - An Introduction To Proof Through Real Analysis or
- MA 34100 - Foundations Of Analysis
- MA 45000 - Algebra Honors or
- MA 45300 - Elements Of Algebra I
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

Calculus I Option

- MA 16100 - Plane Analytic Geometry And Calculus I (student SHOULD earn a B- or better) or
- MA 16500 - Analytic Geometry And Calculus I (student SHOULD earn a B- or better)

Calculus II Option

- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus

Educational Program Course Requirements (37 credits)

EDUCATIONAL CONTENT

Average GPA in courses must be 3.00 - no grade lower than C-

- EDCI 22550 - Mathematics Education Seminar
- EDCI 20500 - Exploring Teaching As A Career (satisfies Written Communication for University Core)
- EDCI 27000 - Introduction To Educational Technology And Computing (satisfies Information Literacy for University Core)
- EDCI 28500 - Multiculturalism And Education (satisfies Behavioral/Social Science for University Core)
- EDPS 23500 - Learning And Motivation (satisfies Behavioral/Social Science for University Core)
- EDPS 26500 - The Inclusive Classroom (satisfies Behavioral/Social Science for University Core)
- EDST 20010 - Educational Policies And Laws (satisfies Behavioral/Social Science for University Core) (1 credit required)
- EDPS 32700 - Classroom Assessment (1 credit required)
- EDPS 43010 - Secondary Creating And Managing Learning Environments (1 credit required)
- EDCI 42500 - Teaching Of Secondary Mathematics - Methods I (3 credits required)
- EDCI 42600 - Teaching Of Secondary Mathematics - Methods II
- EDCI 49800 - Supervised Teaching (12 credit hours required)

Other Departmental/Program Course Requirements (21-45 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Human Cultures Humanities for core)

- Language/Culture Option I (*met by EDCI 28500 in major*)
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (*Met by EDCI 42500 in major*)

- **LABORATORY SCIENCE[^]** - Credit Hours: 6.00-8.00 (satisfies Science for core)
- Laboratory Science Option I
- Laboratory Science Option II

MATHEMATICS (Met with Required Major Courses)

STATISTICS (Met with Required Major Courses)

COMPUTING (Met with Required Major Courses)

GENERAL EDUCATION[^] - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science for core)

- General Education Option I (*Met by EDPS 23500 in major*)
- General Education Option II
- General Education Option III

Electives (1-22 credits)

Optional Concentration

K-12 Integrated STEM Optional Concentration for Education

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- EDCI 20500 - Exploring Teaching As A Career

- ENGL 10600 - First-Year Composition ♦ or
- ENGL 10800 - Accelerated First-Year Composition ♦ or
- HONR 19903 - Interdisciplinary Approaches In Writing ♦ or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity ♦
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection 3.00 - 4.00
- Elective - Credit Hours: 1.00
- Elective - Credit Hours: 1.00 (MA 10800 strongly recommended)

15-18 Credits

Spring 1st Year

- EDCI 22550 - Mathematics Education Seminar
- EDCI 28500 - Multiculturalism And Education
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-17 Credits

Fall 2nd Year

- EDCI 27000 - Introduction To Educational Technology And Computing
- EDST 20010 - Educational Policies And Laws
- MA 46000 - Geometry
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00-4.00
- Elective - Credit Hours: 1.00

15-17 Credits

Spring 2nd Year

- MA 37500 - Introduction To Discrete Mathematics
- STAT 31100 - Introductory Probability
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection or Elective - Credit Hours: 3.00

- Elective - Credit Hours: 1.00 (Highly recommend EDCI 22550; if taken more than once, the higher grade will be used to compute the Professional Education GPA.)

16-18 Credits

Fall 3rd Year

- COM 21700 - Science Writing And Presentation
- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom
- EDPS 32700 - Classroom Assessment
- MA 35100 - Elementary Linear Algebra (student SHOULD earn a B- or better)
- MA 30100 - An Introduction To Proof Through Real Analysis or
- MA 34100 - Foundations Of Analysis

16 Credits

Spring 3rd Year

- EDCI 42500 - Teaching Of Secondary Mathematics - Methods I
- EDPS 43010 - Secondary Creating And Managing Learning Environments
- MA 36600 - Ordinary Differential Equations
- STAT 35000 - Introduction To Statistics ♦
- Great Issues In Science Option - Credit Hours: 3.00

15 Credits

Fall 4th Year

- EDCI 42600 - Teaching Of Secondary Mathematics - Methods II
- MA 48400 - Seminar On Teaching College Algebra And Trigonometry
- MA 45000 - Algebra Honors or
- MA 45300 - Elements Of Algebra I
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 - 2.00

16-18 Credits

Spring 4th Year

- EDCI 49800 - Supervised Teaching

12 Credits

Notes

- Average GPA in courses must be 2.50 or higher in **Required Major Courses (CONTENT COURSES)**
- Average GPA in courses must be 3.00 or higher in **Required Major Courses (EDUCATIONAL CONTENT)**
- 2.5 Graduation GPA required for Bachelor of Science degree.
- For Licensing - Students must pass GATE C

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Mathematics Honors, BS

About the Program

Math students enjoy a great deal of personal attention. Most math classes for math majors have 40 or fewer students, and many upper-level classes have fewer than 25 students. In addition, the math curriculum is flexible enough that students can take classes in other interest areas or pursue a double major or a minor without too much difficulty. Math specializations include:

- Applied mathematics
- Business mathematics
- Mathematics
- Mathematics teaching
- Mathematics with computer science option
- Mathematics with statistics option
- Operations research

Important note: When applying for any specialization within Mathematics, select "Mathematics" as your major. You will have the opportunity to specialize as you progress through the curriculum.

Mathematics Website

Mathematics Major Change (CODO) Requirements (Students must CODO to Mathematics before Mathematics Honors.)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

- Major
- Science Core Curriculum
- Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses

Required Major Courses (28 credits)

Average GPA in courses must be 3.50 or higher in **Required Major Courses**. Average GPA in MA 44000, MA 44200 and MA 45000 must be 3.50 or higher.

- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- MA 35100 - Elementary Linear Algebra (students SHOULD earn a B- or better)
- MA 35301 - Linear Algebra II
- MA 36600 - Ordinary Differential Equations
- MA 45000 - Algebra Honors

Advanced Calculus Selective

- MA 36200 - Topics In Vector Calculus or
- MA 44200 - Honors Real Analysis II

MA Selectives

- Choose 9 credit hours.
- No more than two courses from any one group.
- If student takes MA 34100, he or she must take MA 44000 for this MA Selective.
- And/or if student takes MA 36200 or MA 51000, he or she must take MA 44200 for this MA Selective.

Analysis

- MA 42500 - Elements Of Complex Analysis

- MA 42800 - Introduction To Fourier Analysis
- MA 44000 - Honors Real Analysis I
- MA 44200 - Honors Real Analysis II

Computer Science

- CS 24000 - Programming In C
- CS 25100 - Data Structures And Algorithms

Discrete Mathematics, Foundations

- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 48300 - Introduction To The Theory Of Computation
- MA 37500 - Introduction To Discrete Mathematics
- MA 38500 - Introduction To Logic

Numerical Analysis

- CS 31400 - Numerical Methods
- CS 51400 - Numerical Analysis
- CS 51500 - Numerical Linear Algebra
- CS 52000 - Computational Methods In Optimization

Statistics, Probability

- MA 41600 - Probability
- STAT 41600 - Probability
- STAT 41700 - Statistical Theory
- STAT 51600 - Basic Probability And Applications
- STAT 51700 - Statistical Inference
- STAT 51900 - Introduction To Probability

Approved for MATH/MAED dual majors ONLY

The course is repeatable, but only allowed once for degree requirements.

- MA 48400 - Seminar On Teaching College Algebra And Trigonometry

Approved for MATH/PHYS dual majors ONLY

This option is a possibility for MATH/PHYS dual majors only. Students must meet qualifications per the Physics department to take these courses.

- PHYS 60000 - Methods Of Theoretical Physics I
- PHYS 60100 - Methods Of Theoretical Physics II

Other Departmental/Program Course Requirements (39-67 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*– Credit Hours: 0.00 – 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended))

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 – 3.00

LANGUAGE & CULTURE** – Credit Hours: 0.00 – 9.00 (Select courses COULD satisfy Human Cultures Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE – Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE** - Credit Hours: 0.00 – 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE^ – Credit Hours: 6.00-8.00 (satisfies Science for core)

- Laboratory Science Option I
- Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I or (students SHOULD earn a B- or better)
- MA 16500 - Analytic Geometry And Calculus I (students SHOULD earn a B- or better)
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit Hours: 3.00

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦

COMPUTING - Credit Hours: 3.00-4.00

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION^ (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 9.00

- General Education Option I
- General Education Option II
- General Education Option III

REQUIRED PRE-REQUISITE COURSES (Calculus III Option) - Credit Hours: 4.00-5.00

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (25-53 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (MA 10800 strongly recommended)
- Electives - Credit Hours: 4.00

15-18 Credits

Spring 1st Year

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

- Electives - Credit Hours: 5.00

15-18 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 5.00 (MA 30100 recommended)

15-18 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra (students SHOULD earn a B- or better)
- COM 21700 - Science Writing And Presentation
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦

- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-16 Credits

Fall 3rd Year

- MA 36600 - Ordinary Differential Equations
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 2.00

15-17 Credits

Spring 3rd Year

- MA 35301 - Linear Algebra II
- MA 36200 - Topics In Vector Calculus or
- MA 44200 - Honors Real Analysis II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- MA 44000 - Honors Real Analysis I (if not taken in place of MA 34100)
- MA 45000 - Algebra Honors
- Science Core Selection - Credit Hours: 3.00
- Great Issues In Science Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-18 Credits

Spring 4th Year

- MA 44200 - Honors Real Analysis II (if not take as Advanced Calculus Selective)
- MA Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Notes

- Average GPA in courses must be 3.50 or higher in **Required Major Courses**.
- Average GPA in MA 44000, MA 44200 and MA 45000 must be 3.50 or higher.
- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (Biblical)
ITAL-Italian	JPNS-Japanese	KOR-Korean
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Critical Course

The ♦ course is considered critical.

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Mathematics, BS

About the Program

Math students enjoy a great deal of personal attention. Most math classes for math majors have 40 or fewer students, and many upper-level classes have fewer than 25 students. In addition, the math curriculum is flexible enough that students can take classes in other interest areas or pursue a double major or a minor without too much difficulty. Math specializations include:

- Applied mathematics
- Business mathematics
- Mathematics
- Mathematics teaching
- Mathematics with computer science option
- Mathematics with statistics option
- Operations research

Important note: When applying for any specialization within Mathematics, select "Mathematics" as your major. You will have the opportunity to specialize as you progress through the curriculum.

Mathematics Website

Mathematics Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

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- Major
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- Electives

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- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

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College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses

Required Major Courses (28 credits)

Average GPA in courses must be 2.00 or higher in **Required Major Courses**.

- MA 35100 - Elementary Linear Algebra (student SHOULD earn a B- or better)
- MA 36600 - Ordinary Differential Equations
- MA 35301 - Linear Algebra II
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I

- MA 45300 - Elements Of Algebra I or
- MA 45000 - Algebra Honors

Advanced Calculus Selective (3 credits)

- MA 36200 - Topics In Vector Calculus or
- MA 44200 - Honors Real Analysis II

Math Selective (9 credits)

No more than two courses in any one category.

Analysis

- MA 42500 - Elements Of Complex Analysis
- MA 42800 - Introduction To Fourier Analysis
- MA 44000 - Honors Real Analysis I
- MA 44200 - Honors Real Analysis II

Computer Science

- CS 24000 - Programming In C
- CS 25100 - Data Structures And Algorithms

Discrete Mathematics, Foundations

- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 48300 - Introduction To The Theory Of Computation
- MA 37500 - Introduction To Discrete Mathematics
- MA 38500 - Introduction To Logic

Numerical Analysis

- CS 31400 - Numerical Methods
- CS 51400 - Numerical Analysis
- CS 51500 - Numerical Linear Algebra
- CS 51501 - Parallelism In Numerical Linear Algebra
- CS 52000 - Computational Methods In Optimization

Statistics, Probability

- MA 41600 - Probability
- STAT 41600 - Probability
- STAT 41700 - Statistical Theory
- STAT 51600 - Basic Probability And Applications
- STAT 51700 - Statistical Inference
- STAT 51900 - Introduction To Probability

Allowed for MATH/MAED dual majors ONLY

The course is repeatable, but only allowed once for degree requirements.

- MA 48400 - Seminar On Teaching College Algebra And Trigonometry

Allowed for MATH/PHYS dual majors ONLY

This option is a possibility for MATH/PHYS dual majors only. Students must meet qualifications per the Physics department to take these courses.

- PHYS 60000 - Methods Of Theoretical Physics I
- PHYS 60100 - Methods Of Theoretical Physics II

Other Departmental/Program Course Requirements (39-67 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE^ - Credit Hours: 6.00-8.00 (satisfies Science for core)

- Laboratory Science Option I
- Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit Hours: 3.00

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦

COMPUTING - Credit Hours: 3.00-4.00

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION[^] (Select courses COULD satisfy Behavioral/Social Science for core)

General Education Option I

General Education Option II

General Education Option III

REQUIRED PRE-REQUISITE COURSES (Calculus III Option) - Credit Hours: 4.00-5.00

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (25-53 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or

- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (MA 10800 strongly recommended)
- Elective - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 1st Year

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 5.00

15-18 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00 (MA 30100 recommended)
- Elective - Credit Hours: 2.00

15-18 Credits

Spring 2nd Year

- COM 21700 - Science Writing And Presentation
- MA 35100 - Elementary Linear Algebra
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 - 3.00

15 Credits

Fall 3rd Year

- MA 36600 - Ordinary Differential Equations
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 5.00

15-16 Credits

Spring 3rd Year

- MA 35301 - Linear Algebra II
- MA 36200 - Topics In Vector Calculus or
- MA 44200 - Honors Real Analysis II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 6.00

15-16 Credits

Fall 4th Year

- MA 45300 - Elements Of Algebra I or
- MA 45000 - Algebra Honors
- Math Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Great Issues In Science Option - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 0.00 - 3.00

15-18 Credits

Spring 4th Year

- Math Selective - Credit Hours: 3.00
- Math Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Notes

- Average GPA in courses must be 2.00 or higher in **Required Major Courses**.
- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS-Chinese
GER-German	GREK-Greek (ancient)	HEBR-Hebrew (
ITAL-Italian	JPNS-Japanese	KOR-Korean
PTGS-Portuguese	RUSS-Russian	SPAN-Spanish

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Mathematics/Business, BS

About the Program

Math students enjoy a great deal of personal attention. Most math classes for math majors have 40 or fewer students, and many upper-level classes have fewer than 25 students. In addition, the math curriculum is flexible enough that students can take classes in other interest areas or pursue a double major or a minor without too much difficulty. Math specializations include:

- Applied mathematics
- Business mathematics
- Mathematics
- Mathematics teaching
- Mathematics with computer science option
- Mathematics with statistics option
- Operations research

Important note: When applying for any specialization within Mathematics, select "Mathematics" as your major. You will have the opportunity to specialize as you progress through the curriculum.

Mathematics Website

Mathematics/Business Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

- Major
- Science Core Curriculum
- Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)

- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Departmental/Program Major Courses (37-40 credits)

Required Major Courses (22 credits)

Average GPA in courses must be 2.00 or higher in **Required Major Courses**.

- MA 35100 - Elementary Linear Algebra (student SHOULD earn a B- or better)
- MA 35301 - Linear Algebra II
- MA 36600 - Ordinary Differential Equations
- MA 37300 - Financial Mathematics
- STAT 51200 - Applied Regression Analysis
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- MA 41600 - Probability or
- STAT 41600 - Probability or
- STAT 51600 - Basic Probability And Applications
- STAT 41700 - Statistical Theory or
- STAT 51700 - Statistical Inference

Minor Requirement (15-18 credits)

Students must earn a minor in **ECONOMICS, BUSINESS ECONOMICS or MANAGEMENT** to complete the major.

Other Departmental/Program Course Requirements (39-67 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or

- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 strongly recommended.)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE^ - Credit Hours: 6.00-8.00 (satisfies Science for core)

- Laboratory Science Option I
- Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I (student SHOULD earn a B- or better) or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit Hours: 3.00

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦

COMPUTING - Credit Hours: 3.00-4.00

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION^ - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science for core)

General Education Option I
General Education Option II
General Education Option III

REQUIRED PRE-REQUISITE COURSES - Credit Hours: 4.00-5.00

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus

^ Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (13-44 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (MA 10800 strongly recommended)
- Electives - Credit Hours: 3.00 - 5.00

16-17 Credits

Spring 1st Year

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

- Electives - Credit Hours: 5.00

15 Credits

Fall 2nd Year

- MA 37300 - Financial Mathematics
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Minor Course Selection - Credit Hours: 3.00 - 4.00
- Elective Credit Hours: 0-2.00

15-16 Credits

Spring 2nd Year

- COM 21700 - Science Writing And Presentation
- MA 35100 - Elementary Linear Algebra (student SHOULD earn a B- or better)
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
- Minor Course Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- MA 41600 - Probability or
- STAT 41600 - Probability or
- STAT 51600 - Basic Probability And Applications
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

16-18 Credits

Spring 3rd Year

- MA 35301 - Linear Algebra II
- Minor Course Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00

15-17 Credits

Fall 4th Year

- MA 36600 - Ordinary Differential Equations
- STAT 41700 - Statistical Theory or
- STAT 51700 - Statistical Inference
- Minor Course Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Great Issues Option - Credit Hours: 3.00

16-17 Credits

Spring 4th Year

- STAT 51200 - Applied Regression Analysis
- Minor Course Selection - Credit Hours: 3.00
- Minor Course Selection or Elective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Notes

- Average GPA in courses must be 2.00 or higher in **Required Major Courses**.
- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic	CHNS
GER-German	GREK-Greek (ancient)	HEBR
ITAL-Italian	JPNS-Japanese	KOR-I
PTGS-Portuguese	RUSS-Russian	SPAN

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Mathematics/Computer Science, BS

About the Program

Math students enjoy a great deal of personal attention. Most math classes for math majors have 40 or fewer students, and many upper-level classes have fewer than 25 students. In addition, the math curriculum is flexible enough that students can take classes in other interest areas or pursue a double major or a minor without too much difficulty. Math specializations include:

- Applied mathematics
- Business mathematics
- Mathematics
- Mathematics teaching
- Mathematics with computer science option
- Mathematics with statistics option
- Operations research

Important note: When applying for any specialization within Mathematics, select "Mathematics" as your major. You will have the opportunity to specialize as you progress through the curriculum.

Mathematics Website

Mathematics/Computer Science Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

- Major
- Science Core Curriculum
- Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses

Required Major Courses (31 credits)

Average GPA in courses must be 2.00 or higher in **Required Major Courses**.

- CS 24000 - Programming In C
- CS 25100 - Data Structures And Algorithms
- CS 31400 - Numerical Methods
- MA 35100 - Elementary Linear Algebra (student SHOULD earn a B- or better)
- MA 36600 - Ordinary Differential Equations
- MA 37500 - Introduction To Discrete Mathematics

MACS Math Selective (6 credits)

Choose two.

- MA 35301 - Linear Algebra II
- MA 38500 - Introduction To Logic
- MA 45000 - Algebra Honors
- MA 45300 - Elements Of Algebra I

CS Selective (3 credits)

Choose one.

- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 33400 - Fundamentals Of Computer Graphics
- CS 48300 - Introduction To The Theory Of Computation
- CS 51400 - Numerical Analysis
- CS 51500 - Numerical Linear Algebra
- CS 52000 - Computational Methods In Optimization

MA/STAT Selective (3 credits)

Choose one.

- MA 34100 - Foundations Of Analysis
- MA 36200 - Topics In Vector Calculus
- MA 42500 - Elements Of Complex Analysis
- MA 44000 - Honors Real Analysis I
- MA 44200 - Honors Real Analysis II
- MA 45000 - Algebra Honors
- STAT 42000 - Introduction To Time Series
- MA 41600 - Probability or
- STAT 41600 - Probability

Other Departmental/Program Course Requirements (39-66 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00
(satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
 - ENGL 10800 - Accelerated First-Year Composition or
 - SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
 - HONR 19903 - Interdisciplinary Approaches In Writing
- TECHNICAL WRITING AND PRESENTATION***- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I
Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^* - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE^ - Credit Hours: 6.00-8.00 (satisfies Science for core)

Laboratory Science Option I
Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I (student SHOULD earn a B- or better) or
- MA 16500 - Analytic Geometry And Calculus I (student SHOULD earn a B- or better)
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit Hours: 3.00

- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦

COMPUTING - Credit Hours: 3.00

- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- GENERAL EDUCATION^** - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science for core)

General Education Option I
General Education Option II
General Education Option III

REQUIRED PRE-REQUISITE COURSES (Calculus III Option) -
Credit Hours: 4.00-5.00

- MA 26100 - Multivariate Calculus or
 - MA 27101 - Honors Multivariate Calculus
- ^ Labeled as a Science Core Selection in the four year plan of study
*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (23-50 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (MA 10800 strongly recommended)
- Electives - Credit Hours: 4.00

15-18 Credits

Spring 1st Year

- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 4.00

15-17 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 2.00

15-17 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra (student SHOULD earn a B- or better)
- MA 37500 - Introduction To Discrete Mathematics (used as CS 18200 pre-requisite)
- COM 21700 - Science Writing And Presentation
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- CS 24000 - Programming In C
- MA 36600 - Ordinary Differential Equations
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 3.00
- Electives - Credit Hours: 2.00

15-16 Credits

Spring 3rd Year

- CS 25100 - Data Structures And Algorithms
- MA 35301 - Linear Algebra II or
- MA 38500 - Introduction To Logic or
- MA 45000 - Algebra Honors or
- MA 45300 - Elements Of Algebra I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- CS 31400 - Numerical Methods or
- MA 51400 - Numerical Analysis
- MA 35301 - Linear Algebra II or
- MA 38500 - Introduction To Logic or
- MA 45000 - Algebra Honors or
- MA 45300 - Elements Of Algebra I
- Great Issue Option - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- MA/STAT Selective - Credit Hours: 3.00
- CS Selective - Credit Hours: 3.00
- Team-Building & Collaboration - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 3.00 - 6.00

15-18 Credits

Notes

- Average GPA in courses must be 2.00 or higher in **Required Major Courses**.
- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

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Critical Course

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About the Program

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- Business mathematics
- Mathematics
- Mathematics teaching
- Mathematics with computer sciences option
- Mathematics with statistics option
- Operations research

Important note: When applying for any specialization within Mathematics, select "Mathematics" as your major. You will have the opportunity to specialize as you progress through the curriculum.

Mathematics Website

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

- Major
- Science Core Curriculum
- Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

Departmental/Program Major Courses

Required Major Courses (30-31 credits)

Average GPA in courses must be 2.00 in **Required Major Courses**.

- MA 35100 - Elementary Linear Algebra (students SHOULD earn a B- or better)
- MA 35301 - Linear Algebra II
- STAT 51200 - Applied Regression Analysis
- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- STAT 35000 - Introduction To Statistics ♦ (satisfies Statistics Requirement for College of Science Core) or
- STAT 35500 - Statistics For Data Science ♦ (satisfies Statistics Requirement for College of Science Core)
- MA 41600 - Probability or
- STAT 41600 - Probability or
- STAT 51600 - Basic Probability And Applications
- STAT 41700 - Statistical Theory or
- STAT 51700 - Statistical Inference

Advanced Calculus Selective (3 credits)

- MA 36200 - Topics In Vector Calculus or
- MA 44200 - Honors Real Analysis II

Advanced MA Selective (3-4 credits)

- MA 36600 - Ordinary Differential Equations or

- MA 37500 - Introduction To Discrete Mathematics or
- MA 42500 - Elements Of Complex Analysis or
- MA 42800 - Introduction To Fourier Analysis or
- MA 45300 - Elements Of Algebra I or
- MA 45000 - Algebra Honors

STAT Selective (3 credits)

- STAT 51300 - Statistical Quality Control or
- STAT 51400 - Design Of Experiments or
- STAT 42000 - Introduction To Time Series or
- IE 53000 - Quality Control or
- CS 37300 - Data Mining And Machine Learning (Data Science, Computer Science, Computer Science Honors majors only)

Other Departmental/Program Course Requirements (36-64 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*-
Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended.)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00
(Select courses COULD satisfy Human Cultures Humanities for core)

Language/Culture Option I
Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE[^] - Credit Hours: 6.00-8.00 (satisfies Science for core)

Laboratory Science Option I
Laboratory Science Option II

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I (student SHOULD earn a B- or better) or
- MA 16500 - Analytic Geometry And Calculus I (student SHOULD earn a B- or better)
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit Hours: 0.00 (*fulfilled by STAT 35000/35500 in major*)

COMPUTING - Credit Hours: 3.00-4.00

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION[^] - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science for core)

General Education Option I

General Education Option II

General Education Option III

REQUIRED PRE-REQUISITE COURSES (Calculus III Option) - Credit Hours: 4.00-5.00

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
[^] Labeled as a Science Core Selection in the four year plan of study
*Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (25-54 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (MA 10800 strongly recommended)
- Electives - Credit Hours: 4.00-5.00

16-17 Credits

Spring 1st Year

- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 15900 - C Programming ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 3.00
- Electives - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 5.00 (MA 30100 recommended)

15-17 Credits

Spring 2nd Year

- COM 21700 - Science Writing And Presentation
- MA 35100 - Elementary Linear Algebra (students SHOULD earn a B- or better)
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
- Science Core Selection - Credit Hours: 3.00
- Electives - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- MA 34100 - Foundations Of Analysis or
- MA 44000 - Honors Real Analysis I
- MA 41600 - Probability or
- STAT 41600 - Probability or
- STAT 51600 - Basic Probability And Applications
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 3.00
- Electives - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- STAT 41700 - Statistical Theory or
- STAT 51700 - Statistical Inference
- MA 36200 - Topics In Vector Calculus or
- MA 44200 - Honors Real Analysis II
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Electives - Credit Hours: 3.00
- Electives - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- STAT 51200 - Applied Regression Analysis
- Advanced MA Selective - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Electives - Credit Hours: 3.00

15 Credits

Spring 4th Year

- MA 35301 - Linear Algebra II
- CS 37300 - Data Mining And Machine Learning or
- IE 53000 - Quality Control or
- STAT 42000 - Introduction To Time Series or
- STAT 51300 - Statistical Quality Control or
- STAT 51400 - Design Of Experiments
- Science Core Selection - Credit Hours: 3.00-4.00
- Science Core Selection - Credit Hours: 3.00-4.00
- Electives - Credit Hours: 3.00

15-17 Credits

Notes

- Average GPA in courses must be 2.00 in **Required Major Courses**.
- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic
GER-German	GREK-Greek (ancient)
ITAL-Italian	JPNS-Japanese
PTGS-Portuguese	RUSS-Russian

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Mathematics Minor

The Mathematics Minor provides a strong background in mathematics for students majoring in some other discipline.

Requirements for the Minor (12-13 credits)

- Before undertaking this minor, the student must establish the prerequisites for the required minor courses.

Area 1 - Choose One (3 credits)

- MA 35100 - Elementary Linear Algebra
- MA 26500 - Linear Algebra (must be completed with a B- or better) *
- MA 35301 - Linear Algebra II (recommended for students with TR or CR for MA 26500)

Area 2 - Choose One (3 credits)

Algebra

- MA 45300 - Elements Of Algebra I
- MA 45000 - Algebra Honors

Analysis

- MA 34100 - Foundations Of Analysis
- MA 44000 - Honors Real Analysis I

Area 3 - Choose Two (6-7 credits)

The three courses used for Areas 2 and 3 cannot all be from the same group.

Algebra

- MA 45000 - Algebra Honors
- MA 45300 - Elements Of Algebra I

Analysis

- MA 30100 - An Introduction To Proof Through Real Analysis
- MA 34100 - Foundations Of Analysis
- MA 36200 - Topics In Vector Calculus
- MA 42500 - Elements Of Complex Analysis
- MA 42800 - Introduction To Fourier Analysis
- MA 44000 - Honors Real Analysis I
- MA 44200 - Honors Real Analysis II

Computer Science

- CS 24000 - Programming In C or
- ECE 26400 - Advanced C Programming
- CS 25100 - Data Structures And Algorithms or
- ECE 36800 - Data Structures

Differential Equations

Only one differential equations course can be used in AREA 3.

- MA 36600 - Ordinary Differential Equations or
- MA 26600 - Ordinary Differential Equations (must be completed with a B- or better)** or
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences

Discrete Mathematics, Foundation

- CS 38100 - Introduction To The Analysis Of Algorithms
- CS 48300 - Introduction To The Theory Of Computation
- MA 37500 - Introduction To Discrete Mathematics
- MA 38500 - Introduction To Logic

Linear Algebra

- MA 35301 - Linear Algebra II

Numerical Analysis

- CS 31400 - Numerical Methods
- CS 51400 - Numerical Analysis

- CS 51500 - Numerical Linear Algebra
- CS 52000 - Computational Methods In Optimization

Statistics, Probability

Only one statistics, probability course can be used in AREA 3.

- MA 41600 - Probability or
- STAT 41600 - Probability or
- STAT 41700 - Statistical Theory or
- STAT 51600 - Basic Probability And Applications or
- STAT 51900 - Introduction To Probability

Notes

- ALL COURSES REQUIRED FOR THIS MINOR MUST BE TAKEN AT PURDUE UNIVERSITY
- To qualify for the minor, courses must be completed with a C- or better (pass/no pass grade option is not allowed for the minor).
- No substitutions are allowed.
- A course can only be used in one area.
- *For many students, MA 26500 may not be adequate preparation for upper division mathematics classes. Students planning a Mathematics Minor should consider taking MA 35100 instead. Only students with a very firm grasp of the MA 26500 material (and a grade of B- or better) should contemplate taking MA 35301 without MA 35100.
- ** MA 26600 with at least a "B-" can be used in place of MA 36600 (only one of MA 26600/MA 36600/MA 30300 can be used in Area 3). MA 26200 will not be accepted for the minor.

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Department of Physics and Astronomy

Overview

The Department of Physics and Astronomy serves the citizens of Indiana, the United States and the world through discovery that expands knowledge in the field of physics and closely related sciences, through conveyance of this knowledge to our students in an

excellent learning environment, and through engagement in which we share our skills, knowledge, and enthusiasm with diverse communities beyond the University.

At present we have 58 faculty members, 62 postdocs and research scientists, 146 graduate students, and 196 undergraduate physics majors. These individuals conduct research across a broad spectrum of physics:

- Accelerator mass spectrometry
- Applied physics, experimental
- Astrophysics, experimental and theoretical
- Atomic, molecular, and optical (AMO) physics, experimental and theoretical
- Biophysics, experimental and theoretical
- Condensed matter physics, experimental and theoretical
- Geophysics, experimental
- High energy nuclear physics, experimental and theoretical
- High energy particle physics, experimental and theoretical
- Physics education
- Planetary physics

Our faculty members are recognized as world leaders in their respective fields. Included in our ranks are a member of the National Academy of Sciences, a winner of the Hamburg Prize for Theoretical Physics, the immediate past president of the National Association for Research in Science Teaching, 3 AAAS fellows, and 10 APS fellows.

On campus, the department occupies two buildings, the "Physics Building" (originally named the Charles Benedict Stuart Laboratory of Applied Physics) and an attached two-story subterranean laboratory complex containing offices, work rooms, and laboratories dedicated to accelerator mass spectrometry, the Purdue Rare Isotope Measurement Laboratory (PRIME Lab). We also make use of campus facilities in Purdue's Discover Park, particularly the Birck Nanotechnology Center and the Bindley Bioscience Center. Off campus, we participate in research that occurs at the Large Hadron Collider at CERN, Argonne National Laboratory, Brookhaven National Laboratory, Fermilab, the Stanford Linear Accelerator, and several observatories around the globe.

Our department has undergraduate programs in Physics, Honors Physics, Applied Physics, Applied Honors Physics, and Physics Teaching. We also have undergraduate minors in both Astronomy and Physics. Our graduate program offers both M.S. and Ph.D. degrees with a wide variety of specializations.

All physics major students must complete the majority of upper level (300 level and above) physics courses in residence at Purdue. Students can use transfer credits for no more than 50 percent of the upper level physics courses in order to receive a Physics and Astronomy B.S. Degree.

Through our outreach programs we bring our love of physics to thousands of elementary and high school students and their teachers

every year. Classroom visits are complete with demonstrations hands-on learning activities. Teachers receive high-quality, content-based professional development in our workshops and through summer research opportunities.

Faculty

Department of Physics and Astronomy Website

Contact Information

Mailing Address

Department of Physics and Astronomy
525 Northwestern Avenue
West Lafayette, IN 47907-2036

Telephone and Fax

(765) 494-3000 (main office)
(765) 494-2970 (undergraduate office)
(765) 494-0706 (fax)

Department directory

General questions

physcontacts@purdue.edu

Graduate Information

For Graduate Information please see Physics and Astronomy Graduate Program Information.

Baccalaureate

Applied Physics Honors, BS

About the Program

Purdue physics is an internationally recognized department for excellence in forefront research and undergraduate and graduate education. Our undergraduate classes for physics majors average 30 or fewer students and are taught by professors actively engaged in forefront research. Undergraduate research is strongly encouraged and opportunities exist as early as the second semester to work in a research group. These groups include experimental and theoretical condensed matter physics, high energy physics, nano-physics, nuclear physics, astrophysics, biological physics, geophysics, relativity, and interdisciplinary areas of material science, engineering, or computational science.

The department also helps undergraduates with external internships, particularly for the summers. Upon graduation our students are accepted for graduate programs at many of the top universities and are also sought after for positions in industry, particularly high-tech positions. Our graduates have an exceptional record of career accomplishment in a wide variety of settings, including academia and major industrial and government labs.

The specialties under the applied physics curriculum can range from different areas. Individually tailored specialties may be chosen by the student in consultation with an advisor. Currently available specialties include:

- Geophysics and Atmospheric Sciences
- Astrophysics
- Computational Physics
- Nuclear Physics
- Material Science & Engineering
- Chemical Engineering
- Aeronautical & Astronautical Engineering
- Industrial Engineering
- Electrical and Computer Engineering
- Mechanical Engineering
- Medical Physics

In addition, many physics majors manage to complete dual or multiple major programs within the College of Science. This is possible because of a considerable overlap of the College of Science requirements. Popular dual majors with physics are: mathematics, computer science and chemistry.

The following stipulations need to be met in order to be in, stay in and graduate in the Honors or Applied Honors Program:

- No D+ or worse grade is allowed in any course for a student to stay in the Honors Programs.
- No more than one C range grade is allowed in all physics courses taken for a student to graduate with Honor. Note that a course can be re-taken for the purpose of satisfying this guideline.
- Both the physics AND overall GPAs of 3.0 or better are required for a student to graduate with Honor.
- All the core courses (PHYS 17200, 27200, 30600, 30700, 34400, 34000, and 42200) be complete with a B or better.
- Students need to petition to Undergraduate Committee for exceptions or requests.

Physics Website

Physics Major Change (CODO) Requirements (Students must CODO into Physics before Honors.)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

- Major
- Science Core Curriculum
- Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science

- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Applied Physics Honors Major Courses (68-69 credits)

Required Major Courses (44-45 credits)

- PHYS 17200 - Modern Mechanics ♦ (satisfies Science for core) (satisfies Teambuilding for College of Science core)
 - Physics Majors are required to take the honors sections of PHYS 17200 in the fall.
- PHYS 27200 - Electric And Magnetic Interactions ♦ (also satisfies Science for core)
 - Physics Majors are required to take the honors sections of PHYS 27200 in the spring.
- PHYS 30600 - Mathematical Methods Of Physics I
- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 34000 - Modern Physics Laboratory
- PHYS 34400 - Modern Physics
- PHYS 41000 - Physical Mechanics I Honors
- PHYS 41600 - Thermal And Statistical Physics Honors
- PHYS 42200 - Waves And Oscillations
- PHYS 43000 - Electricity And Magnetism I Honors
- PHYS 45000 - Intermediate Laboratory
- PHYS 46000 - Quantum Mechanics I Honors
- PHYS 59300 - Independent Research
 - Calculus III Option - Select from:
 - MA 26100 - Multivariate Calculus (satisfies Quantitative Reasoning for core) or
 - MA 27101 - Honors Multivariate Calculus (satisfies Quantitative Reasoning for core)

Major Selective* - 24 credits

- Must be in chosen applied area(s) approved by the Physics and Astronomy Department
- Any >30000 level course taken for letter grade option (pass/no-pass option not approved) in the following course subjects:
- AAE, BIOL, CE, CHM, CS, EAPS, ECE, ME, MSE

Other Departmental/Program Course Requirements (37-66 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)
Language/Culture Option I
Language/Culture Option II
Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Credit Hours: 8.00

- CHM 11500 - General Chemistry ♦ (satisfies Science for core)

- CHM 11600 - General Chemistry ♦ (satisfies Science for core)

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS – Credit Hours: 3.00

- STAT 30100 - Elementary Statistical Methods ♦ or
- STAT 35000 - Introduction To Statistics ♦

COMPUTING - Credit Hours: 3.00-4.00

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL EDUCATION[^] - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science for core)

- Option I
- Option II
- Option III

[^] Labeled as a Science Core Selection in the four year plan of study

*Requirement may be met with a zero credit experiential learning option. See your advisor for more information.

Electives (0-15 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- CHM 11500 - General Chemistry ♦
- PHYS 17200 - Modern Mechanics ♦ (Honors sections)
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I

15-17 Credits

Spring 1st Year

- PHYS 27200 - Electric And Magnetic Interactions ♦ (Honors sections)
- CHM 11600 - General Chemistry ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-17 Credits

Fall 2nd Year

- PHYS 30600 - Mathematical Methods Of Physics I
- PHYS 34000 - Modern Physics Laboratory
- PHYS 34400 - Modern Physics
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 2nd Year

- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 42200 - Waves And Oscillations
- STAT 30100 - Elementary Statistical Methods ♦ or
- STAT 35000 - Introduction To Statistics ♦
- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

16 Credits

Fall 3rd Year

- COM 21700 - Science Writing And Presentation
- PHYS 41000 - Physical Mechanics I Honors
- PHYS 45000 - Intermediate Laboratory
- PHYS 46000 - Quantum Mechanics I Honors
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects
♦ or
- CS 18000 - Problem Solving And Object-Oriented
Programming ♦
- Science Core Selection - Credit Hours: 3.00

17-18 Credits

Spring 3rd Year

- PHYS 43000 - Electricity And Magnetism I Honors
- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

15 Credits

Fall 4th Year

- PHYS 41600 - Thermal And Statistical Physics
Honors
- PHYS 59300 - Independent Research
- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00

16 Credits

Spring 4th Year

- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

14 Credits

Notes

- * Could Satisfies a University Core Requirement
- 3.0 Graduation GPA required for Bachelor of Science degree.
- 3.0 average in PHYS/ASTR classes required to graduate.
- No more than one C grade (i.e., C+, C, or C-) is allowed in all physics courses taken
- No grade of D+ or worse is allowed in any course.
- ♦ Identified as a critical course. Students should earn minimum of a B- see advisor for futher details

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic
GER-German	GREK-Greek (ancient)
ITAL-Italian	JPNS-Japanese
PTGS-Portuguese	RUSS-Russian

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example,

should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Applied Physics, BS

About the Program

Purdue physics is an internationally recognized department for excellence in forefront research and undergraduate and graduate education. Our undergraduate classes for physics majors average 30 or fewer students and are taught by professors actively engaged in forefront research.

Undergraduate research is strongly encouraged and opportunities exist as early as the second semester to work in a research group. These groups include experimental and theoretical condensed matter physics, high energy physics, nano-physics, nuclear physics, astrophysics, biological physics, geophysics, relativity, and interdisciplinary areas of material science, engineering, or computational science.

The department also helps undergraduates with external internships, particularly for the summers. Upon graduation our students are accepted for graduate programs at many of the top universities and are also sought after for positions in industry, particularly high-tech positions. Our graduates have an exceptional record of career accomplishment in a wide variety of settings, including academia and major industrial and government labs.

The specialties under the applied physics curriculum can range from different areas. Individually tailored specialties may be chosen by the student in consultation with an advisor. Currently available specialties include:

- Geophysics and Atmospheric Sciences
- Astrophysics
- Computational Physics
- Nuclear Physics
- Material Science & Engineering
- Chemical Engineering
- Aeronautical & Astronautical Engineering

- Industrial Engineering
- Electrical and Computer Engineering
- Mechanical Engineering
- Medical Physics

In addition, many physics majors manage to complete dual or multiple major programs within the College of Science. This is possible because of a considerable overlap of the College of Science requirements. Popular dual majors with physics are: mathematics, computer science and chemistry.

Physics Website

Physics Major Change (CODO) Requirements (Students must CODO into Physics before Applied.)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

- Major
- Science Core Curriculum
- Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Applied Physics Major Courses (65 - 66 credits)

Required Major Courses (41-42 credits)

- PHYS 17200 - Modern Mechanics ♦
Physics Majors are required to take the honors sections of PHYS 17200 (satisfies Science for core) (satisfies Teambuilding for College of Science core)
- PHYS 27200 - Electric And Magnetic Interactions ♦ Physics Majors are required to take the honors sections of PHYS 27200 (satisfies Science for core)
- PHYS 30600 - Mathematical Methods Of Physics I
- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 31000 - Intermediate Mechanics
- PHYS 33000 - Intermediate Electricity And Magnetism
- PHYS 34000 - Modern Physics Laboratory
- PHYS 34400 - Modern Physics
- PHYS 36000 - Quantum Mechanics
- PHYS 42200 - Waves And Oscillations
- PHYS 45000 - Intermediate Laboratory
- PHYS 51500 - Thermal And Statistical Physics

Calculus III Option - Select from:

- MA 26100 - Multivariate Calculus (satisfies Quantitative Reasoning for core) or
- MA 27101 - Honors Multivariate Calculus (satisfies Quantitative Reasoning for core)

Major Selective* - (24 credits)

- Any >30000 level course taken for letter grade option (pass/no-pass option not approved) in the following course subjects, as approved by the Physics and Astronomy Department:
 - AAE, BIOL, CE, CHM, CS, EAPS, ECE, ME, MSE

Other Departmental/Program Course Requirements (37- 66 credits)

COLLEGE OF SCIENCE CORE
REQUIREMENTS

FIRST-YEAR COMPOSITION –
Credit Hours: 3.00-4.00 (satisfies
Written Communication and
Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*- Credit Hours: 0.00 - 6.00 (Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

- Language/Culture Option I
- Language/Culture Option II
- Language/Culture Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)
LABORATORY SCIENCE - Credit Hours: 8.00

- CHM 11500 - General Chemistry ♦ (satisfies Science for core)
- CHM 11600 - General Chemistry ♦ (satisfies Science for core)

MATHEMATICS - Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS – Credit Hours: 3.00

- STAT 30100 - Elementary Statistical Methods ♦ or

- STAT 35000 - Introduction To Statistics ♦
COMPUTING - Credit Hours: 3.00-4.00
 - CS 15900 - C Programming ♦ or
 - CS 17700 - Programming With Multimedia Objects ♦ or
 - CS 18000 - Problem Solving And Object-Oriented Programming ♦
GENERAL EDUCATION[^] - Credit Hours: 9.00 (Select courses COULD satisfy Behavioral/Social Science for core)
 - Option I
 - Option II
 - Option III
- [^] Labeled as a Science Core Selection in the four year plan of study
*Requirement may be met with a zero credit experiential learning option. See your advisor for more information.

Electives (1-18 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- PHYS 17200 - Modern Mechanics ♦
(Honors sections)
- CHM 11500 - General Chemistry ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year
Composition or
- SCLA 10100 - Transformative Texts,
Critical Thinking And Communication I:
Antiquity To Modernity or
- HONR 19903 - Interdisciplinary
Approaches In Writing
- MA 16100 - Plane Analytic Geometry And
Calculus I or
- MA 16500 - Analytic Geometry And
Calculus I

15-17 Credits

Spring 1st Year

- PHYS 27200 - Electric And Magnetic
Interactions ♦ (Honors sections)
- CHM 11600 - General Chemistry ♦
- MA 16200 - Plane Analytic Geometry And
Calculus II or
- MA 16600 - Analytic Geometry And
Calculus II
- Science Core Selection - Credit Hours: 3.00 -
4.00

15-17 Credits

Fall 2nd Year

- PHYS 30600 - Mathematical Methods Of
Physics I
- PHYS 34000 - Modern Physics Laboratory
- PHYS 34400 - Modern Physics
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 -
4.00

15-17 Credits

Spring 2nd Year

- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 42200 - Waves And Oscillations
- STAT 30100 - Elementary Statistical Methods ♦ or
- STAT 35000 - Introduction To Statistics ♦
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00

16-18 Credits

Fall 3rd Year

- COM 21700 - Science Writing And Presentation
- PHYS 31000 - Intermediate Mechanics
- PHYS 33000 - Intermediate Electricity And Magnetism
- PHYS 45000 - Intermediate Laboratory
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

15-16 Credits

Spring 3rd Year

- PHYS 36000 - Quantum Mechanics
- PHYS 51500 - Thermal And Statistical Physics
- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00

15 Credits

Fall 4th Year

- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Electives - Credit Hours: 3.00

15 Credits

Spring 4th Year

- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Major Selective - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Electives - Credit Hours: 2.00

14 Credits

Notes

- *COULD Satisfies a University Core Requirement
- 2.0 Graduation GPA required for Bachelor of Science degree.
- 2.0 average in PHYS/ASTR classes required to graduate.
- ♦ Identified as a critical course. Students should earn minimum of a B- see advisor for further details

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	ARAB-Arabic
GER-German	GREK-Greek
ITAL-Italian	JPNS-Japanese
PTGS-Portuguese	RUSS-Russian

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher

Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Physics Honors, BS

About the Program

Purdue physics is an internationally recognized department for excellence in forefront research and undergraduate and graduate education. Our undergraduate classes for physics majors average 30 or fewer students and are taught by professors actively engaged in forefront research.

Undergraduate research is strongly encouraged and opportunities exist as early as the second semester to work in a research group. These groups include experimental and theoretical condensed matter physics, high energy physics, nano-physics, nuclear physics, astrophysics, biological physics, geophysics, relativity, and interdisciplinary areas of material science, engineering, or computational science.

The department also helps undergraduates with external internships, particularly for the summers. Upon graduation our students are accepted for graduate programs at many of the top universities and are also sought after for positions in industry, particularly high-tech positions. Our graduates have an exceptional record of career accomplishment in a wide variety of settings, including academia and major industrial and government labs.

The honors program offers an intensive concentration in physics that provides a solid foundation for advanced studies. Successful graduates of this challenging program are recognized for both the depth and breadth of their physics education, and they have gone on to the premier graduate schools in the country and, ultimately, to many different career choices.

The honors program provides a solid theoretical and experimental background in mechanics, electromagnetism, waves and oscillations, thermal physics, quantum mechanics, and the micro-structure of matter.

A very important feature of this plan is a senior research project (PHYS 59300) with a written report in some area of modern physics, such as condensed matter physics, nuclear physics, elementary particle physics, biophysics, geophysics, etc. Students receive individual supervision and guidance from a faculty member whose specialty matches the area of their research project. PHYS 59300 introduces students to the type of research atmosphere they later might encounter as professional physicists, and it promotes self-motivation and independence in their work.

The Honors Program in the Department of Physics and Astronomy begins in the Junior Year. All physics majors typically start by taking PHYS 17200 and PHYS 27200 as freshmen. Students from other majors who have taken PHYS 17200/PHYS 27200 may switch into the Honors Physics major. Admission to, and continuation in, the honors program requires that all the core courses (PHYS 17200, PHYS 27200, PHYS 30600, PHYS 30700, PHYS 34400, PHYS 34000, and PHYS 42200) be complete with a B or better, or special permission from the Physics Undergraduate Committee.

The following stipulations need to be met in order to be in, stay in and graduate in the Honors or Applied Honors Program:

- No D+ or worse grade is allowed in any course for a student to stay in the Honors Programs.
- No more than one C range grade is allowed in all physics courses taken for a student to graduate with Honor. Note that a course can be re-taken for the purpose of satisfying this guideline.

- Both the physics AND overall GPAs of 3.0 or better are required for a student to graduate with Honor.
 - All the core courses (PHYS 17200, PHYS 27200, PHYS 30600, PHYS 30700, PHYS 34400, PHYS 34000, and PHYS 42200) be complete with a B or better.
 - Students need to petition to Undergraduate Committee for exceptions or requests.
- Physics Website

Physics Major Change (CODO)
Requirements (Students must CODO into Physics before moving into Physics Honors.)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

- Major
- Science Core Curriculum
- Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic

advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into

their four-year program of study. For more information on earning requirements through experience, please click [here](#).

Physics Honors Major Courses (66-68 credits)

Required Major Courses (51-52 credits)

- PHYS 17200 - Modern Mechanics ♦ (Physics majors are required to take the honors sections)(satisfies Science Selective for core)(satisfies Teambuilding Experience for College of Science core)
- PHYS 27200 - Electric And Magnetic Interactions ♦ (Physics majors are required to take the honors sections)(also satisfies Science for core)
- PHYS 30600 - Mathematical Methods Of Physics I
- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 34000 - Modern Physics Laboratory
- PHYS 34400 - Modern Physics
- PHYS 41000 - Physical Mechanics I Honors
- PHYS 41100 - Physical Mechanics II Honors
- PHYS 41600 - Thermal And Statistical Physics Honors
- PHYS 42200 - Waves And Oscillations
- PHYS 43000 - Electricity And Magnetism I Honors
- PHYS 43100 - Electricity And Magnetism II Honors
- PHYS 45000 - Intermediate Laboratory
- PHYS 46000 - Quantum Mechanics I Honors
- PHYS 46100 - Quantum Mechanics II Honors

- PHYS 59300 - Independent Research

Calculus III Options -

Credit Hours: 4-5

- MA 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus

Major Selective* (15-16 credits)

Advanced Lab Options

- PHYS 53600 - Electronic Techniques For Research or
- PHYS 58000 - Computational Physics
- PHYS/ASTR Selective \geq 500 level - Credit Hours: 3.00
- PHYS/ASTR Selective \geq 500 level - Credit Hours: 3.00
- Science/Engineering Selective \geq 300 level (could be met by Statistics for College of Science core) - Credit Hours: 3.00
- Science/Engineering Selective \geq 300 level (could be met by Statistics for College of Science core) - Credit Hours: 3.00

**Other
Departmental/Program
Course Requirements
(43-62 credits)**

**COLLEGE OF SCIENCE CORE
REQUIREMENTS**

FIRST-YEAR

COMPOSITION – Credit Hours: 3.00-4.00 (satisfies Written Communication and Information Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or

- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION*-

Credit Hours: 0.00 - 6.00
(Select courses COULD satisfy Oral Communication for core; COM 21700 is strongly recommended)

TEAM-BUILDING & COLLABORATION* -

Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^{^*} - Credit

Hours: 0.00 - 9.00 (Select courses COULD satisfy Humanities for core)

Language/Culture Option I

Language/Culture Option II

Language/Culture Option III

GREAT ISSUES IN

SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*} - Credit

Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY

SCIENCE - Credit Hours: 8.00

- CHM 11500 - General Chemistry
♦ (satisfies Science for core)
- CHM 11600 - General Chemistry
♦ (satisfies Science for core)

MATHEMATICS - Credit

Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or

- MA 16600 - Analytic Geometry And Calculus II

STATISTICS - Credit

Hours: 3.00

- STAT 30100 - Elementary Statistical Methods ♦ or
- STAT 35000 - Introduction To Statistics ♦

COMPUTING - Credit

Hours: 3.00-4.00

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦

GENERAL

EDUCATION[^] - Credit

Hours: 9.00 (Select courses

COULD satisfy

Behavioral/Social Science for core)

General Education Option I

General Education Option II

General Education Option III

[^] Labeled as a Science Core

Selection in the four year

plan of study

*Requirement may be met with a zero credit experiential learning option. Please see your advisor for more information.

Electives (1-17 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)
- Science #2 (SCI)

- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, click [here](#).

Program Requirements

Fall 1st Year

- PHYS 17200 - Modern Mechanics ♦ (Honors sections)
- CHM 11500 - General Chemistry ♦
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I

15-17 Credits

Spring 1st Year

- CHM 11600 - General Chemistry ♦
- PHYS 27200 - Electric And Magnetic Interactions ♦ (Honors sections)
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

- Science Core Selection - Credit Hours: 3.00 - 4.00

15-17 Credits

Fall 2nd Year

- PHYS 30600 - Mathematical Methods Of Physics I
- PHYS 34000 - Modern Physics Laboratory
- PHYS 34400 - Modern Physics
- MA 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 2nd Year

- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 42200 - Waves And Oscillations
- STAT 30100 - Elementary Statistical Methods ♦ or
- STAT 35000 - Introduction To Statistics ♦
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science/Engineering Selective ≥ 300 - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

16-17 Credits

Fall 3rd Year

- COM 21700 - Science Writing And Presentation
- PHYS 41000 - Physical Mechanics I Honors
- PHYS 46000 - Quantum Mechanics I Honors
- PHYS 45000 - Intermediate Laboratory

- Science Core Selection - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

18 Credits

Spring 3rd Year

- PHYS 41100 - Physical Mechanics II Honors
- PHYS 43000 - Electricity And Magnetism I Honors
- PHYS 46100 - Quantum Mechanics II Honors
- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

16-18 Credits

Fall 4th Year

- PHYS 41600 - Thermal And Statistical Physics Honors
- PHYS 43100 - Electricity And Magnetism II Honors
- PHYS 59300 - Independent Research
- Science/Engineering Selective ≥ 300 - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00

15 Credits

Spring 4th Year

- PHYS 53600 - Electronic Techniques For Research or
- PHYS 58000 - Computational Physics

- PHYS/ASTR Selective ≥ 500 - Credit Hours: 3.00
- PHYS/ASTR Selective ≥ 500 - Credit Hours: 3.00
- Science Core Selection - Credit Hours: 3.00
- Elective - Credit Hours: 1.00

13-15 Credits

Notes

- * COULD Satisfies a University Core Requirement
- 3.0 Graduation GPA required for Bachelor of Science degree.
- 3.0 average in PHYS/ASTR classes required to graduate.
- No more than one C grade (i.e., C+, C, or C-) is allowed in all physics courses taken
- No grade of D+ or worse is allowed in any course.
- ♦ Identified as a critical course. Students should earn minimum of a B- see advisor for further details

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language	AR
GER-German	GR
ITAL-Italian	JPN
PTGS-Portuguese	RU

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

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geophysics, relativity, and interdisciplinary areas of material science, engineering, or computational science.

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This program offers a specialization in physics as the core of a broad general education. The core courses provide a solid foundation in Classical Mechanics, Electricity and Magnetism, Waves and Oscillations, Quantum Mechanics, Thermal and Statistical Physics, Modern Physics, Relativity, Electronics, and Computational Physics.

By using electives in the program, a student can include concentrations in condensed matter physics (PHYS 54500), nuclear physics (PHYS 55600), astrophysics (PHYS 56000), particle physics (PHYS 56400), and other areas. Students also are encouraged to participate in one or two semesters of individual research projects with a selected faculty member (PHYS 39000, PHYS 49000, or PHYS 59000).

Opportunities for employment in fields related to physics will also be enhanced by taking electives in additional science courses such as biological sciences, chemistry, computer science, geosciences, meteorology, and in various branches of engineering. With assistance from an advisor, a student can prepare an individualized program suited to career plans by selecting electives from these areas or from any other area within the

University. Normally, students take such electives as juniors and seniors.

Physics Website

Physics Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

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Required Major Courses (41-42 credits)

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- PHYS 27200 - Electric And Magnetic Interactions ♦ (Physics majors required to take honors sections)(satisfies Science Selective for core)
- PHYS 30600 - Mathematical Methods Of Physics I
- PHYS 30700 - Mathematical Methods Of Physics II

- PHYS 31000 - Intermediate Mechanics
 - PHYS 33000 - Intermediate Electricity And Magnetism
 - PHYS 34000 - Modern Physics Laboratory
 - PHYS 34400 - Modern Physics
 - PHYS 36000 - Quantum Mechanics
 - PHYS 42200 - Waves And Oscillations
 - PHYS 45000 - Intermediate Laboratory
 - PHYS 51500 - Thermal And Statistical Physics
- Calculus III**
Option - Credit Hours: 4-5
- MA 26100 - Multivariate Calculus or
 - MA 27101 - Honors Multivariate Calculus (satisfies Quantitative Reasoning for core)

Major Selective* (12-13 credits)

Advanced Lab Option

- PHYS 53600 - Electronic Techniques For Research or
- PHYS 58000 - Computational Physics
- PHYS/ASTR ≥ 300 level - Credit Hours: 3.00
- Science/Engineering Elective ≥ 300 level (could be met by Statistics for College of Science core) - Credit Hours: 3.00
- Science/Engineering Elective ≥ 300 level (could be met by Great Issues for College of Science core) - Credit Hours: 3.00

Other Departmental/Program Course Requirements (43-62 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST-YEAR COMPOSITION

– Credit Hours:
3.00-4.00 (satisfies
Written
Communication
and Information
Literacy for core)

- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity or
- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION

*- Credit Hours:
0.00 - 6.00 (Select
courses COULD
satisfy Oral
Communication for
core; COM
21700 is strongly
recommended)

TEAM- BUILDING & COLLABORATI ON* - Credit Hours: 0.00 - 3.00

LANGUAGE & CULTURE^* - Credit Hours: 0.00

- 9.00 (Select courses COULD satisfy Humanities for core)
Language/Culture
Option I
Language/Culture
Option II
Language/Culture
Option III

GREAT ISSUES IN SCIENCE - Credit Hours: 3.00

MULTIDISCIPLINARY EXPERIENCE^{^*}

- Credit Hours: 0.00 - 3.00 (Select courses COULD satisfy Science, Technology, Society for core)

LABORATORY SCIENCE - Credit Hours: 8.00

- CHM 11500 - General Chemistry ♦ (satisfies Science for core)
- CHM 11600 - General Chemistry ♦ (satisfies Science for core)

MATHEMATICS

- Credit Hours: 8.00-10.00 (satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II

STATISTICS -
Select from:

- STAT 30100 -
Elementary Statistical
Methods ♦ or
- STAT 35000 -
Introduction To Statistics ♦
COMPUTING -
Credit Hours: 3.00-
4.00
- CS 15900 - C
Programming ♦ or
- CS 17700 -
Programming With
Multimedia Objects ♦ or
- CS 18000 - Problem
Solving And Object-
Oriented Programming ♦
**GENERAL
EDUCATION^** -
Credit Hours: 9.00
(Select courses
COULD satisfy
Behavioral/Social
Science for core)
General Education
Option I
General Education
Option II
General Education
Option III
^ Labeled as a
Science Core
Selection in the
four year plan of
study
*Requirement may
be met with a zero
credit experiential
learning option.
See your advisor
for more
information.

Electives (3-24
credits)

University Core
Requirements

For a complete listing of
University Core Course

Selectives, visit the [Provost's Website](#).

- Human Cultures:
Behavioral/Social Science
(BSS)
- Human Cultures:
Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning
(QR)
- Science #1 (SCI)
- Science #2 (SCI)
- Science, Technology, and
Society (STS)
- Written Communication
(WC)

Prerequisite Information:

For current pre-
requisites for
courses, click [here](#).

Program Requirements

Fall 1st Year

- CHM 11500 - General
Chemistry ♦
- PHYS 17200 - Modern
Mechanics ♦ (Honors
sections)
- ENGL 10600 - First-
Year Composition or
- ENGL 10800 -
Accelerated First-Year
Composition or
- HONR 19903 -
Interdisciplinary
Approaches In Writing or
- SCLA 10100 -
Transformative Texts,
Critical Thinking And

Communication I: Antiquity
To Modernity

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I

15-17 Credits

Spring 1st Year

- CHM 11600 - General Chemistry ♦
- PHYS 27200 - Electric And Magnetic Interactions ♦ (Honors sections)
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-17 Credits

Fall 2nd Year

- PHYS 30600 - Mathematical Methods Of Physics I
- PHYS 34000 - Modern Physics Laboratory
- PHYS 34400 - Modern Physics
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- Science Core Selection - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 2nd Year

- PHYS 30700 -
Mathematical Methods Of
Physics II
- PHYS 42200 - Waves
And Oscillations
- STAT 30100 -
Elementary Statistical
Methods ♦ or
- STAT 35000 -
Introduction To Statistics ♦
- Science Core Selection -
Credit Hours: 3.00 - 4.00
- Elective - Credit Hours:
3.00

15-16 Credits

Fall 3rd Year

- PHYS 31000 -
Intermediate Mechanics
- PHYS 33000 -
Intermediate Electricity
And Magnetism
- PHYS 45000 -
Intermediate Laboratory
- COM 21700 - Science
Writing And Presentation
- Science Core Selection -
Credit Hours: 3.00
- Science Core Selection -
Credit Hours: 3.00

18 Credits

Spring 3rd Year

- PHYS 36000 - Quantum
Mechanics
- PHYS 51500 - Thermal
And Statistical Physics
- CS 15900 - C
Programming ♦ or
- CS 17700 -
Programming With
Multimedia Objects ♦ or
- CS 18000 - Problem
Solving And Object-
Oriented Programming ♦

- Science Core Selection* -
Credit Hours: 3.00
- Elective - Credit Hours:
3.00

15-16 Credits

Fall 4th Year

- PHYS/ASTR Selective \geq
300 level - Credit Hours: 3.00
- Science/Engineering
Selective \geq 300 - Credit
Hours: 3.00
- Great Issues In Science
Option - Credit Hours: 3.00
- Science Core Selection -
Credit Hours: 3.00
- Elective - Credit Hours:
3.00

15 Credits

Spring 4th Year

- PHYS 53600 -
Electronic Techniques For
Research or
- PHYS 58000 -
Computational Physics
- Science/Engineering
Selective \geq 300 - Credit
Hours: 3.00
- Electives - Credit Hours:
3.00
- Electives - Credit Hours:
3.00
- Electives - Credit Hours:
2.00

14-15 Credits

Notes

- 2.0 Graduation GPA
required for Bachelor of
Science degree.

- 2.0 average in PHYS/ASTR classes required to graduate.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language

GER-German

ITAL-Italian

PTGS-Portuguese

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Minor

Astronomy Minor

Requirements for the Minor (15-16 credits)

Before undertaking this minor, the student must establish the prerequisites for the required minor courses.

Required Courses (12-13 credits)

- ASTR 36300 - The Solar System
- ASTR 36400 - Stars And Galaxies
- ASTR 37000 - Cosmology
- PHYS 34200 - Modern Physics or
- PHYS 34400 - Modern Physics

Additional Course - Choose One (3 credits)

- ASTR 56000 - Stellar Evolution
- PHYS 56000 - Stellar Evolution
- ASTR 56100 - Galaxies And Large Scale Structure
- PHYS 56100 - Galaxies And Large Scale Structure
- ASTR 56200 - Introduction To High Energy Astrophysics
- PHYS 56200 - Introduction To High Energy Astrophysics
- ASTR 56300 - Astroparticle Physics
- PHYS 56300 - Astroparticle Physics
- ASTR 56700 - Observational Techniques In Astronomy
- PHYS 56700 - Observational Techniques In Astronomy
- PHYS/ASTR - Approved 40000- level or above - Credit Hours: 3.00

Notes

- A student must receive a GPA of 2.0 or higher in required minor courses
- In addition, GPA over all PHYS and ASTR courses must be 2.0 or higher. (These requirements apply to students who matriculate at Purdue in or after Fall 2011.)
- ALL REQUIRED COURSES FOR THIS MINOR MUST BE TAKEN AT PURDUE UNIVERSITY
- No course may be taken pass/fail

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completing all degree requirements.

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Physics Minor

Requirements for the Minor (10-11 credits)

Before undertaking this minor, the student must establish the prerequisites for the required minor courses.

Required Courses (4-5 credits)

- PHYS 34000 - Modern Physics Laboratory
- PHYS 34200 - Modern Physics or
- PHYS 34400 - Modern Physics

Physics courses 30000-level or above (6 credits)

- PHYS 30000-59999 (Except PHYS 31700, PHYS 39000, PHYS 49000, PHYS 59000, or PHYS 59300)

Notes

- A student must receive a GPA of 2.0 or higher in required minor courses.
- These requirements apply to students who matriculate at Purdue in or after Fall 2011.

- ALL REQUIRED COURSES FOR THIS MINOR MUST BE TAKEN AT PURDUE UNIVERSITY
- No course may be taken pass/fail

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Department of Statistics

Overview

The Department of Statistics is housed in Haas Hall and the Mathematical Sciences Building. The main office, the graduate office, and some of the department's faculty, staff, and student offices are located on the first and second floors of HAAS. The rest of the faculty, staff, and graduate students are located on the fifth, second, and ground floors of the MATH building. The Department's Graduate program is ranked in the top 10 by U.S. News and World Report, April 2008.

There are 39 tenured and tenure-track professors, 3 emeriti faculty, 5 adjunct faculty members, 7 visiting professors and 17 lecturers who form the Department of

Statistics faculty. Visiting Scholars from all over the world enrich the group.

The Department of Statistics has about 433 undergraduate students majoring in statistics and/or actuarial science (a joint major with the Department of Mathematics).

The Department of Statistics has 114 graduate students, 70 are Ph.D. Students and 44 are M.S. students.

Faculty

Department of Statistics
Website

Contact Information

Department of Statistics
Purdue University
250 N. University Street
West Lafayette, IN 47907-
2066
USA

Phone: 1-765-494-6030
Fax: 1-765-494-0558

Administrative Contacts

Department Head: Hao
Zhang

zhanghao@purdue.edu

Associate Head: Tom Sellke
tsellke@purdue.edu

Assistant to the Head: Julie
Wise jlwise@purdue.edu

Graduate Information

For Graduate Information
please see Statistics Graduate
Program Information.

Baccalaureate

Applied Statistics, BS

About the Program

Statistics at Purdue University is one of the largest (students and faculty) in the United States. It is consistently rated by U.S. News and World Report as one of the top departments in the country. It offers courses in fundamental statistics and probability, and also courses that focus on statistical computation to train students as future data scientists. Students enjoy a great deal of interaction with faculty as well as small classes. The department offers a master's program in which a student can earn both a bachelor's degree and a master's degree in five years.

The statistics major consists of two options:

- Applied statistics
- Mathematical statistics (Mathematical statistics usually leads to a double major in mathematics and statistics.)

Statistics - Applied Statistics Website

Applied Statistics Major Change (CODO) Requirements

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements for College of Science

A College of Science degree is conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

- Major
- Science Core Curriculum
- Electives

Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework
- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science degree plans.
- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options.

College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurduePlan to view the use of each option in their degree plan.

Most College of Science degree programs contain elective credits students may use to pursue courses that relate to their interests or which support their major area of study. The elective area of a degree plan may also be used to complete minors, second majors and certificates such as the Entrepreneurial Certificate. With the exception of courses on the No Count List, any Purdue course may be used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007

Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation
- Computing
- Cultural Diversity (Language and Culture)
- General Education
- Great Issues in Science
- Laboratory Science
- Mathematics
- Multidisciplinary Experience
- Statistics
- Teambuilding and Collaboration
- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more

information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please click here.

Departmental/Program Major Courses (24-25 credits)

Required Major Courses (18 credits)

Average GPA in courses must be 2.00 in **Required Major Courses**.

- MA 35100 - Elementary Linear Algebra
- STAT 51200 - Applied Regression Analysis
- STAT 35000 - Introduction To Statistics ♦
(satisfies Statistics requirement for College of Science core) or
- STAT 35500 - Statistics For Data Science ♦

- MA 36200 -
Topics In Vector
Calculus or
- STAT 42000 -
Introduction To
Time Series
- MA 41600 -
Probability
(students SHOULD
earn a C or better)
or
- STAT 41600 -
Probability (stude
nts SHOULD earn
a C or better) or
- STAT 51600 -
Basic Probability
And Applications
(students SHOULD
earn a C or better)
- STAT 41700 -
Statistical
Theory or
- STAT 51700 -
Statistical
Inference

Applied Statistics Selective (6-7 credits)

Choose courses
from the list below.

(Check with
advisor for
additional approved
courses.)

- STAT 51300 -
Statistical Quality
Control
- STAT 51400 -
Design Of
Experiments
- STAT 42000 -
Introduction To
Time Series
- STAT 47201 -
Actuarial Models-

Life
Contingencies
• STAT 47301 -
Introduction To
Arbitrage-Free
Pricing Of
Financial
Derivatives
• STAT 50600 -
Statistical
Programming
And Data
Management
• STAT 52200 -
Sampling And
Survey
Techniques

Other Departmental/Program Course Requirements (36-64 credits)

COLLEGE OF SCIENCE CORE REQUIREMENTS

FIRST- YEAR COMPO SITION

– Credit
Hours:
3.00-4.00
(satisfies
Written
Communication
and
Information
Literacy
for core)

• ENGL 10600 -
First-Year
Composition or

- ENGL 10800 - Accelerated First-Year Composition

or

- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity

- HONR 19903 - Interdisciplinary Approaches In Writing

TECHNICAL WRITING AND PRESENTATION

*- Credit

Hours:

0.00 -

6.00

(Select courses

COULD

satisfy

Oral

Communication

for core;

COM

21700 is

strongly

recommended)

TEAM-BUILDING & COLLABORATION*

Credit

Hours:

0.00 -

3.00

LANGUAGE & CULTURE*

Credit
Hours:
0.00 -
9.00
(Select
courses
COULD
satisfy
Humaniti
es for
core)

- Language/Culture
Option I
- Language/Culture
Option II
- Language/Culture
Option III

**GREAT
ISSUES
IN
SCIENC
E - Credit
Hours:
3.00**

**MULTI
DISCIP
LINARY
EXPERI
ENCE^***
- Credit
Hours:
0.00 -
3.00
(Select
courses
COULD
satisfy
Science,
Technolo
gy,
Society
for core)

**LABOR
ATORY
SCIENC
E^ -
Credit
Hours:**

6.00-
8.00 (sati
sfies
Science
for core)

- Laboratory
Science Option I

- Laboratory
Science Option II

**MATHE
MATIC
S** - Credit
Hours:
8.00-
10.00
(satisfies
Quantitati
ve
Reasonin
g for
core)

- MA 16100 -
Plane Analytic
Geometry And
Calculus I or

- MA 16500 -
Analytic
Geometry And
Calculus I

- MA 16200 -
Plane Analytic
Geometry And
Calculus II or

- MA 16600 -
Analytic
Geometry And
Calculus II

**STATIS
TICS** -
Credit
Hours:
0.00-3.00
(Met by
required
major
courses.)

**COMPU
TING** -
Credit
Hours:
3.00-4.00

- CS 17700 -
Programming

With Multimedia
Objects ♦ or
• CS 15900 - C
Programming ♦ or
• CS 18000 -
Problem Solving
And Object-
Oriented
Programming ♦

**GENERAL
EDUCATION[^]** (
Select
courses
COULD
satisfy
Behavioral/Social
Science
for core)
- Credit
Hours:
9.00

- General
Education Option I
- General
Education Option II
- General
Education Option
III

**REQUIRE
PRE-
REQUISITE
COURSE**
- (student
s
SHOULD
Earn a
C or
better)

- MA 26100 -
Multivariate
Calculus or
- MA 27101 -
Honors
Multivariate
Calculus
[^] Labeled
as a
Science

Core Selection in the four year plan of study
*Requirement may be met with a zero credit experiential learning option. See your advisor for more information.

Electives (31-60 credits)

University Core Requirements

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)
- Human Cultures: Humanities (HUM)
- Information Literacy (IL)
- Oral Communication (OC)
- Quantitative Reasoning (QR)
- Science #1 (SCI)

- Science #2 (SCI)
- Science, Technology, and Society (STS)
- Written Communication (WC)

Prerequisite Information:

For current pre-requisites for courses, [click here](#).

Program Requirements

Fall 1st Year

- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16500 - Analytic Geometry And Calculus I
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 1.00 (STAT 10100 strongly recommended)
- Elective - Credit Hours: 4.00

15-18 Credits

Spring 1st Year

- CS 15900 - C Programming ♦ or
- CS 17700 - Programming With Multimedia Objects ♦ or
- CS 18000 - Problem Solving And Object-Oriented Programming ♦
- MA 16200 - Plane Analytic Geometry And Calculus II or
- MA 16600 - Analytic Geometry And Calculus II
- Science Core Selection - Credit Hours: 3.00-4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- ENGL 10600 - First-Year Composition or
- ENGL 10800 - Accelerated First-Year Composition or

- HONR 19903 - Interdisciplinary Approaches In Writing or
- SCLA 10100 - Transformative Texts, Critical Thinking And Communication I: Antiquity To Modernity
- Science Core Selection - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 2.00

15-18
Credits

Spring 2nd
Year

- COM 21700 - Science Writing And Presentation
- MA 35100 - Elementary Linear Algebra
- STAT 35000 - Introduction To Statistics ♦ or
- STAT 35500 - Statistics For Data Science ♦
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Fall 3rd
Year

- MA 36200 -
Topics In Vector
Calculus or
- STAT 42000 -
Introduction To
Time Series
- MA 41600 -
Probability or
- STAT 41600 -
Probability or
- STAT 51600 -
Basic Probability
And Applications
- Science Core
Selection - Credit
Hours: 3.00 - 4.00
- Elective - Credit
Hours: 3.00
- Elective - Credit
Hours: 3.00

**15-16
Credits**

**Spring 3rd
Year**

- STAT 41700 -
Statistical
Theory or
- STAT 51700 -
Statistical
Inference
- Applied
Statistics Selective
- Credit Hours:
3.00 - 4.00
- Science Core
Selection - Credit
Hours: 3.00 - 4.00
- Elective - Credit
Hours: 3.00
- Elective - Credit
Hours: 3.00

**15-17
Credits**

Fall 4th Year

- STAT 51200 -
Applied
Regression
Analysis
- Great Issues
Option - Credit
Hours: 3.00
- Science Core
Selection - Credit
Hours: 3.00
- Science,
Technology &
Society Selective -
Credit Hours: 3.00
- Electives - Credit
Hours: 3.00

15 Credits

Spring 4th Year

- Applied
Statistics Selective
- Credit Hours:
3.00 - 4.00
- Science Core
Selection - Credit
Hours: 3.00 - 4.00
- Science Core
Selection - Credit
Hours: 3.00 - 4.00
- Elective - Credit
Hours: 3.00
- Elective - Credit
Hours: 3.00

15-18
Credits

Notes

- Average GPA in
courses must be
2.00 in **Required
Major Courses.**

- 2.0 Graduation GPA required for Bachelor of Science degree.

World Language Courses

World Language proficiency requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language

GER-German

ITAL-Italian

PTGS-Portuguese

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's Public Colleges and Universities, published by the Commission for Higher Education (pursuant to HEA 1348-2013), a

Critical Course is identified as "one that a student must be able to pass to persist and succeed in a particular major. Students who want to be nurses, for example, should know that they are expected to be proficient in courses like biology in order to be successful. These would be identified by the institutions for each degree program".

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

**Data
Science,
BS
(Statistics)**

**About
the**

Program

Majoring in data science at Purdue will place you at the forefront of an emerging field and prepare you for an exciting career at the intersection of computer science and statistics.

Created jointly by Purdue's Department of Computer Science and Department of Statistics, the data science major will open pathways to careers in virtually every area of society, from healthcare, security and sustainability to education, business and economics.

Data Science Major

Data Science
(Statistics) Major
Change (CODO)
Requirements

Curriculum
and
Degree
Requirements for
College of
Science

A College of
Science degree is

conferred when a student successfully completes all requirements in their degree program. Students will complete coursework or approved experiential learning activities to meet the following three degree components:

- Major
- Science Core Curriculum

- Electives
Students may use any of the following options to meet College of Science degree requirements:

- Purdue Coursework

- Ap, IB, and CLEP credit. The use of AP and IB coursework varies between College of Science

degree plans.

- Transfer Credit. Students should consult the Admissions Transfer Credit Resource page for all available transfer options. College of Science degree programs vary widely in their approval and use of the proceeding options and thus students are strongly encouraged to work closely with their academic advisors and to regularly consult their MyPurdue ePlan to view the use of each option in their

degree
plan.

Most
College
of
Science
degree
programs
contain
elective
credits
students
may use
to pursue
courses
that relate
to their
interests
or which
support
their
major
area of
study.
The
elective
area of a
degree
plan may
also be
used to
complete
minors,
second
majors
and
certificate
s such as
the
Entrepre-
neurial
Certificat
e. With
the
exception
of
courses
on the No
Count
List, any
Purdue
course
may be

used to meet the elective area of a student's degree plan.

College of Science Core Requirements

All Students starting Purdue University Fall semester, 2007 or later are required to pursue the 2007 Science Core curriculum.

The College of Science Core Curriculum requires the completion of approved coursework and/or experiential learning opportunities in the following academic areas:

- Composition and Presentation

- Computing

- Cultural Diversity (Language and Culture)

- General Education

- Great Issues in Science

- Laboratory Science

- Mathematics

- Multidisciplinary Experience

- Statistics

- Teambuilding and Collaboration

- No Count List

Earning Core Curricular Requirements through Experience

Students may meet selected core curriculum requirements through approved experiential learning opportunities. Interested students should contact their academic advisor for more information on this option and incorporating experiential learning into their four-year program of study. For more information on earning requirements through experience, please [click here](#).

**Degree
Requirements**

Requirements

**120
Credits
Required**

Data
Science
Major
Courses
(50-
54
credits)

- CS 18000 - Problem Solving And Object-Oriented Programming ♦* (satisfies Computing and Teambuilding for College of Science core)
- CS 18200 -

Foundations Of
Computer
Science

- CS
19100 -
Freshman

Resources

Seminar

- CS
19300 -
Tools

- CS
24200 -
Introduction To
Data
Science

or

- STAT
24200 -
Introduction To
Data
Science

- CS
25100 -
Data
Structures And
Algorithms

- CS
37300 -
Data
Mining
And
Machine
Learning

- CS
38003 -
Python
Programming

- STAT
35500 -
Statistics For
Data
Science

- STAT 41700 - Statistical Theory
- STAT 41600 - Probability
- MA 35100 - Elementary Linear Algebra
- MA 26100 - Multivariate Calculus or
- MA 27101 - Honors Multivariate Calculus
- CS 49000 - Topics In Computer Science For Undergraduates - (Large Scale Data Analysis (LDA)) or
- STAT 49000 - Topics In Statistics For Undergraduates - (Large Scale Data

Analysis
(LDA))
or

Ethics Select ive (3 credit s)

- ILS
23000 -
Data
Science
And
Society:
Ethical
Legal
Social
Issues or

- PHIL
20700 -
Ethics
For
Technol
ogy,
Enginee
ring,
And
Design
or

- PHIL
20800 -
Ethics
Of Data
Science
- (must
be 3.00
Credit
Hour
option)

CS Electi ves (6 credit s)

Choose two.

- CS 31400 - Numerical Methods

- CS 35500 - Introduction To Cryptography

- CS 47100 - Introduction to Artificial Intelligence

- CS 47300 - Web Information Search And Management

- CS 49000 - Topics In Computer Science For Undergraduates -IDV

- CS 30700 - Introduction to Data Visualization

- CS 30700 - Software Engineering I or

- CS 40800 -

Software
Testing

- CS
34800 -
Informati
on
Systems
or

- CS
44800 -
Introduct
ion To
Relation
al
Databas
e
Systems

- CS
38100 -
Introduct
ion To
The
Analysis
Of
Algorith
ms or

- CS
48300 -
Introduct
ion To
The
Theory
Of
Comput
ation

**Statis
tics
Electi
ve (3
credit
s)**

Choose
one.

- STAT
42000 -
Introduct
ion To

Time
Series

- STAT
50600 -
Statistic
al

Program
ming
And
Data
Manage
ment

- STAT
51200 -
Applied
Regressi
on

Analysis

- STAT
51300 -
Statistic
al

Quality
Control

- STAT
51400 -
Design
Of

Experim
ents

- STAT
52200 -
Samplin
g And

Survey
Techniq
ues

- STAT
52500 -
Intermed
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Statistic
al
Methodo
logy

- MA
49000 -
Topics
In

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Elementary
Stochastic
Processes
or
• STAT
49000 -
Topics
In
Statistics For
Undergraduates
-
Elementary
Stochastic
Processes

Capstone
Experience
(0-3
credits)

Choose
one
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• STAT
49000 -
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- CS 49000 - Topics In Computer Science For Undergraduates

- Introduction to Data Visualization (if taken after CS 37300; could not be used as CS Elective)
- Credit Hours: 3.00

- CS 30700 - Software Engineering I

- CS
49700 -
Honors
Research
Project

- EPCS
41100 -
Senior
Design
Participa
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EPICS

- EPCS
41200 -
Senior
Design
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- CS
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38600 -
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48700 -
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Science -
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COLLEGE
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• ENGL
10600 -
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• ENGL
10800 -
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Composi
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• SCLA
10100 -
Transfor
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- MA
16100 -
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have C or

better to meet
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18200) or
• MA
16500 -
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prerequisite for CS
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16600 -
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Electives
(8-41
credits)

University
Core
Requirements

ireme nts

For a complete listing of University Core Course Selectives, visit the [Provost's Website](#).

- Human Cultures: Behavioral/Social Science (BSS)

- Human Cultures: Humanities (HUM)

- Information Literacy (IL)

- Oral Communication (OC)

- Quantitative Reasoning (QR)

- Science #1 (SCI)

- Science #2 (SCI)

- Science, Technology, and Society (STS)

- Written

Communication
(WC)

Prerequisite
Information:

For current
enrollment
prerequisite
check

Additional Requirements

Click
here
for Data
Science
Supplemen-
tal
Information.

Program Requirements

Fall 1st Year

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ *
- CS 19100 - Freshman Resources Seminar

- CS
19300 -
Tools

- MA
16100 -
Plane
Analytic
Geometr
y And
Calculus
I or

- MA
16500 -
Analytic
Geometr
y And
Calculus
I

- Science
Core
Selection
- Credit
Hours:
3.00 -
4.00

- Elective -
Credit
Hours:
3.00

16-18
Credit
s

Spring
1st
Year

- CS
18200 -
Foundati
ons Of
Comput
er
Science
*

- CS
38003 -
Python

Program
ming

- ENGL
10600 -
First-
Year

Composi
tion or

- ENGL
10800 -
Accelera
ted First-
Year

Composi
tion or

- HONR
19903 -
Interdisc
iplinary
Approac
hes In
Writing

or

- SCLA
10100 -
Transfor
mative
Texts,
Critical
Thinking
And
Commu
nication
I:

Antiquity
To
Modernit
y

- MA
16200 -
Plane
Analytic
Geometr
y And
Calculus
II or

- MA
16600 -
Analytic
Geometr
y And
Calculus
II

- Science Core Selection - Credit Hours: 3.00 - 4.00

- Electives - Credit Hours: 1.00

15-18 Credits

Fall 2nd Year

- CS 24200 - Introduction To Data Science or

- STAT 24200 - Introduction To Data Science

- STAT 35500 - Statistics For Data Science

- MA 26100 - Multivariate Calculus or

- MA 27101 - Honors Multivariate

ate
Calculus

- Science
Core
Selection
- Credit
Hours:
3.00 -
4.00

- Elective -
Credit
Hours:
1.00 -
3.00

14-18
Credits

Spring
2nd
Year

- CS
25100 -
Data
Structur
es And
Algorith
ms *

- MA
35100 -
Element
ary
Linear
Algebra

- STAT
41600 -
Probabili
ty

- ILS
23000 -
Data
Science
And
Society:
Ethical
Legal
Social

Issues ♦

or

- PHIL 20700 - Ethics For Technology, Engineering, And Design ♦

or

- PHIL 20800 - Ethics Of Data Science ♦ - (must be 3.00 Credit Hour option)

- Science Core Selection - Credit Hours: 3.00 - 4.00

- Elective - Credit Hours: 1.00 - 2.00

16-18
Credits

Fall
3rd
Year

- COM 21700 - Science Writing

And
Present
ation

- CS
37300 -
Data
Mining
And
Machine
Learning

- STAT
41700 -
Statistic
al
Theory

- Science
Core
Selection
- Credit
Hours:
3.00 -
4.00

- Elective -
Credit
Hours:
3.00

15-17
Credit
s

Spring
g 3rd
Year

- CS
Elective -
Credit
Hours 3.0
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- Statistics
Elective -
Credit
Hours:
3.00

- Science
Core

Selection

- Credit

Hours:

3.00 -

4.00

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Issues In

Science -

Credit

Hours:

3.00

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Elective -

Credit

Hours:

3.00

15-17

Credit

s

Fall

4th

Year

• CS

49000 -

Topics

In

Comput

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Science

s For

Undergr

aduates

- (Large

Scale

Data

Analytics

(LSDA))

or

• STAT

49000 -

Topics

In

Statistic

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- (Large

Scale

Data
Analytics
(LSDA))

- CS
Elective -
Credit
Hours:
3.00

- Science
Core
Selection
- Credit
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- Elective -
Credit
Hours:
1.00 -
3.00

16-17
Credits

Spring
4th
Year

- Capstone
Experience/Course
- Credit
Hours:
0.00
- 3.00

- Science

Core
Selection
- Credit
Hours:
3.00 -
4.00

- Science
Core
Selection
- Credit
Hours:
3.00 -
4.00

- Elective -
Credit
Hours:
3.00

- Elective -
Credit
Hours:
3.00

- Elective -
Credit
Hours:
1.00

13-18
Credits

Note

- A
minimum
of 32
semester
credits of
upper
level
(3000+)
required

- 2.0
Major
and
Graduation
GPA

required
for
Bachelor
of
Science
degree.

- *All
CS and
STAT
courses
required
for the
major,
must be
complete
d with a
grade of
"C" or
better.

- *All prer
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to CS and
STAT
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required
for the
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grade of
"C" or
better.

World Language Courses

World
Language
proficien
cy

requirements vary by program. The following list is inclusive of all world languages PWL offers for credit; for acceptable languages and proficiency levels, see your advisor.

ASL-American Sign Language
GER-German
ITAL-Italian
PTGS-Portuguese

Critical Course

The ♦ course is considered critical.

In alignment with the Degree Map Guidance for Indiana's

Public
Colleges
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1348-
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Critical
Course is
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succeed
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would be
identified
by the

institutions for each degree program"

Disclaimer

The student is ultimately responsible for knowing and completing all degree requirements.

The myPurduePlan powered by DegreeWorks is the knowledge source for specific requirements and completion.

Statistics

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Statistics at Purdue University is one of the largest (students and faculty) in the United States. It is consistently rated by *U.S. News and World Report* as one of the top departments in the country. It offers courses in fundamental statistics and probability, and also courses

that focus on statistical computation to train students as future data scientists. Students enjoy a great deal of interaction with faculty as well as small classes. The department offers a master's program in which a student can earn both a bachelor's degree and a master's degree in five years.

The statistics major consists of two options:

- Applied statistics
- Mathematical statistics (Mathematical statistics)

usually
leads to a
double
major in
mathemat
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statistics.
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- Applied
Statistics
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Statistics
- Math
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Requirements for College of Science

A
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of
Science
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conferred
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degree
program.
Students
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complete
coursework
or
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degree
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ASL-American Sign Language
GER-German
ITAL-Italian
PTGS-Portuguese

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