

College of Science

College of Science

Overview

Interim Dean's Welcome

Welcome to the College of Science website! We are delighted that you are interested in how our programs can empower you to launch your career. I encourage you to explore the Careers Section of our website. There you will find a wealth of information that will give you an excellent overview of our majors, career opportunities, and other helpful insight. Please explore the tabs to the left of this text to learn more about our College, opportunities for internships, costs of an education at Purdue, and what life is like as an undergraduate on our campus.

Our website has been designed to provide important information with a simple click. But to get a sense of what it is really like to be a student at Purdue and in the College of Science in particular, nothing substitutes for a visit to our campus. Our recruiting office would love to have the opportunity of hosting you for a campus visit to enable you to see the campus for yourself and meet with some current students. I encourage you to connect with them at: (765) 494-1990, or e-mail to: ScienceRecruiting@purdue.edu.

I extend to you our very best wishes as you embark on this exciting chapter in your life. We would count it a privilege to welcome you into the Boilermaker Family!

Hail Purdue!

Craig K. Svensson, Interim Dean

Departmental Pages:

- Biological Sciences
- Chemistry
- Computer Sciences
- Earth, Atmospheric and Planetary Sciences
- Mathematics
- Physics and Astronomy
- Statistics

Admissions

<http://www.admissions.purdue.edu/majors/colleges.php?ClgCd=SCI>

Admission to Teacher Education

Advising

Seeing a College of Science Academic Advisor

The academic advising relationship in the College of Science is a dynamic coaching, teaching and educational collaboration where students and advisors work in partnership in the attainment of personal, academic and professional goals through intentional interactions that foster informed, student-driven decisions. The academic advising experience is seen as essential to the establishment of meaningful educational, career, and life goals that are consistent with each student's personal values, interests and abilities.

Academic advising practice in the College of Science is predicated on the belief that purposeful individualized attention promotes each student's success and increases student retention through the development of academic maturity, the ability to embrace and overcome challenges, and the development of a personal and academic identity. College of Science advisors seek to encourage and inspire student engagement with their university, the global community and the world of scientific discovery.

Students are strongly encouraged to make their advising relationship a central focus in their success plan during their Purdue experience. Contact information may be found at CoS Advising Offices. [Make An Advising Appointment](#)

Advising Appointment Options

Scheduled Advising Appointments

Students may schedule 30-minute appointments with their assigned advisors:

- to register for Fall/Spring semesters, Summer terms
- for in-depth advising questions
- for academic/degree planning, graduate/professional school planning and career development
- to discuss and receive support in addressing personal and academic challenges
- for general questions and concerns

Students must be on time for their scheduled appointments. Late arrivals of more than 5 minutes may result in a cancellation of your appointment.

Make an Appointment with your advisor.

Walk-in Appointments

Walk-in appointments may be used to drop/add courses, resolve scheduling conflicts, complete paperwork, and to address time-sensitive questions. Appointments are kept to 15 minutes and may not be used for registration or degree planning purposes. Walk-in appointments are scheduled on a first come, first served basis and therefore, students are not guaranteed to see their advisor during scheduled walk-in times if the number of students to be seen is greater than the time that has been scheduled. Students may see their assigned advisor only unless their advisor is not available and there is an immediate need. Before visiting your advising office for a walk-in appointment, check walk-in times. Times are updated the Friday before the following week. Note: walk-in times **ARE** subject to change without notice.

CODO Walk-in Appointments

Students who would like to CODO to the College of Science should consult the Non-College of Science Walk-in Schedule and review College of Science CODO requirements for their intended program before speaking with a Science advisor.

Advising Policy for Students Who Will Pursue a non-College of Science Program

Two Semester Advising Policy:

Students who enter the College of Science with immediate plans to pursue a non-science academic program are eligible to receive two semesters of academic advising and PIN releases as they work towards a successful CODO to their intended program. If CODO requirements are not met by the end of their first year, students will be required to request a CODO to the College of Liberal Arts while they continue to pursue their degree goals.

Four Semester Advising Policy:

Students who pursue a College of Science curriculum but who later determine that they would like to pursue an alternate program outside of the College will have four semesters to successfully CODO. A request may be made for approval of the 5th Semester Advising Policy if a student is close to meeting CODO requirements and has provided course recommendations from an advisor in their intended program.

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

Composition and Presentation Core

Computing Core

Cultural Diversity Core

General Education Core

Great Issues in Science

Laboratory Science Core

Mathematics Core

Multidisciplinary Experience Core

Statistics Core

Teambuilding and Collaboration Core

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

<http://www.science.purdue.edu/faculty-and-staff/directory.php>

Contact Information

Mailing address:

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

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- Science IT

Phone and Fax:

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- 765-496-3015 (fax)
Science Administration

- 765-494-1729 (office)
- 765-494-1736 (fax)
Science IT Helpline

- 765-494-4488

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.

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (68-80 credits)

Required Interdisciplinary Core Courses (68-80 credits)

Required Biology Courses (7-8 credits)

Satisfies Science Selective for core:

- BIOL 11000 - Fundamentals Of Biology I and
 - BIOL 11100 - Fundamentals Of Biology II
- OR
- 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

Required Chemistry Courses (5-10 credits)

- CHM 11500 - General Chemistry (*satisfies Science Selective for core*) or
 - CHM 12500 - Introduction To Chemistry I (*satisfies Science Selective for core*)
- AND
- CHM 11600 - General Chemistry (*satisfies Science Selective for core*) or
 - CHM 12600 - Introduction To Chemistry II (*satisfies Science Selective for core*) or
 - CHM 13600 - General Chemistry Honors (*satisfies Science Selective for core*)
- OR
- CHM 12901 - General Chemistry With A Biological Focus

Required Computing Option (3-4 credits)

- CS 15800 - C Programming
- or
- CS 15900 - Programming Applications For Engineers
- or
- CS 17700 - Programming With Multimedia Objects
- or
- CS 18000 - Problem Solving And Object-Oriented Programming

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

Select courses COULD satisfy Science Selective for core:

- EAPS 10000 - Planet Earth

- or
- EAPS 10900 - The Dynamic Earth
- or
- EAPS 11100 - Physical Geology
- or
- EAPS 22100 - Survey Of Atmospheric Science
- or
- EAPS 22500 - Science Of The Atmosphere

Required Mathematics Courses (6-10 credits)

Satisfies Quantitative Reasoning for core:

- MA 16010 - Applied Calculus I and
- MA 16020 - Applied Calculus II
- OR
- 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)

- PHYS 22000 - General Physics (*satisfies Science Selective for core*)
- and
- PHYS 22100 - General Physics (*satisfies Science Selective for core*)
- or
- PHYS 17200 - Modern Mechanics (*satisfies Science Selective for core*)
- and
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science Selective for core*)
- or
- PHYS 24100 - Electricity And Optics (*satisfies Science Selective for core*)
- or
- PHYS 25200 - Electricity And Optics Laboratory (*satisfies Science Selective for core*)
- or
- PHYS 23300 - Physics For Life Sciences I
- PHYS 23400 - Physics For Life Sciences II

Required Statistics Courses (3 credits)

- STAT 35000 - Introduction To Statistics
- or
- STAT 50300 - Statistical Methods For Biology
- or
- 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 32800 - Principles Of Physiology
or
- BIOL 36700 - Principles Of Development
and
- BIOL 36701 - Principles Of Development Lab
or
- BIOL 39500 - Special Assignments (Macromolecules)
or
- BIOL 41500 - Introduction To Molecular Biology
or
- BIOL 41600 - Viruses And Viral Disease
or
- BIOL 42000 - Eukaryotic Cell Biology
or
- BIOL 43600 - Neurobiology
or
- BIOL 43800 - General Microbiology

Required Supporting Area Courses (18 credits)

MUST BE APPROVED BY COLLEGE

Other Departmental/Program Course Requirements (18-31 credits)

- MA 16010 - Applied Calculus I Calculus I Option within major - (*satisfies Quantitative Reasoning for core*) ♦,
- MA 16020 - Applied Calculus II Calculus II Option within major - (*satisfies Quantitative Reasoning for core*) ♦,
- ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy*)
or
- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy*)
- Language I Option*: (*Select courses COULD satisfy Human Cultures Humanities for core*) - Credit Hours: 0.00 - 4.00
- Language II Option*: (*Select courses COULD satisfy Human Cultures Humanities for core*) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option*: (*Select courses COULD satisfy Human Cultures Humanities for core*) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option: (*Select courses COULD satisfy Oral Communication for core*) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option: within major - (*satisfies Science Selective for core*)
- Laboratory Science II Option: within major- (*satisfies Science Selective for core*)
- 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
- General Education III Option: (*Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core*) - Credit Hours: 3.00

- STAT 35000 - Introduction To Statistics
 - Computing Option: within major
 - Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
 - Great Issues Option: Credit Hours: 3.00
 - Multidisciplinary Experience* (*Select courses COULD satisfy Science, Technology, and Society Selective for core*) - Credit Hours: 0.00 - 3.00
- *Requirement may be met with a zero credit experiential learning option. See your advisor for more information.*

Electives (9-34 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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
- Calculus Option I - Credit Hours: 3.00 - 5.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- Biology Selective I - Credit Hours: Credit Hours: 4.00
- Free Elective - Credit Hours: 0.00 - 1.00

15-18 Credits

Spring 1st Year

- Calculus Option II - Credit Hours: 3.00 - 5.00
- Language I Option - Credit Hours: 3.00 - 4.00

- General Chemistry Selective II or Free Elective - Credit Hours: 4.00 - 5.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Free Elective - Credit Hours: 0.00 - 2.00

14-16 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 or Technical Presentation - Credit Hours: 3.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- Free Elective - Credit Hours: 0.00 - 1.00

15-16 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- General Education I Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 0.00 - 1.00

15-16 Credits

Fall 3rd Year

- Supporting Area Course - Credit Hours: 3.00
- STAT Option - Credit Hours: 3.00
- Teambuilding and Collaboration Experience - Credit Hours: 3.00 - 4.00
- Computing Option - Credit Hours: 3.00 - 4.00
- General Education II Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- BIOL 28600 - Introduction To Ecology And Evolution
- EAPS Selective Course - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- General Education III Option - Credit Hours: 3.00

- Technical Writing or Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15 Credits

Fall 4th Year

- BIOL 39500 - Special Assignments
or
- BIOL 41500 - Introduction To Molecular Biology
or
- BIOL 42000 - Eukaryotic Cell Biology
or
- BIOL 43600 - Neurobiology
or
- BIOL 43800 - General Microbiology
or
- Free Elective - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 3.00
- Physics Selective I - Credit Hours: 4.00
- Free Elective - Credit Hours: 3.00 - 6.00

15-16 Credits

Spring 4th Year

- BIOL 32800 - Principles Of Physiology
or
- BIOL 36700 - Principles Of Development
and
- BIOL 36701 - Principles Of Development Lab
or
- BIOL 41600 - Viruses And Viral Disease
or
- Free Elective - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- Great Issue Option - Credit Hours: 3.00
- Physics Selective II - Credit Hours: 4.00
- Free Elective - Credit Hours: 3.00

16-17 Credits

Note

2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, 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.

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.

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (87-120 credits)

Required Interdisciplinary Core Courses (69-79 credits)

Required Biology Courses (7-8 Credits)

- BIOL 11000 - Fundamentals Of Biology I and
- BIOL 11100 - Fundamentals Of Biology II
or
- 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

Required Chemistry Selective Courses (8-10 credits)

- CHM 11500 - General Chemistry (*satisfies Science Selective for core*) or
- CHM 12500 - Introduction To Chemistry I (*satisfies Science Selective for core*)

- CHM 11600 - General Chemistry (*satisfies Science Selective for core*) or
- CHM 12600 - Introduction To Chemistry II (*satisfies Science Selective for core*) or
- CHM 13600 - General Chemistry Honors (*satisfies Science Selective for core*)
OR
- CHM 12901 - General Chemistry With A Biological Focus + Pass Departmental Exam for CHM 11500

Required Computing Option (3-4 Credits)

- CS 15800 - C Programming or
- CS 15900 - Programming Applications For Engineers or
- CS 17700 - Programming With Multimedia Objects or
- CS 18000 - Problem Solving And Object-Oriented Programming

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

Select courses COULD satisfy Science Selective for core:

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

Required Mathematics Courses (6-10 credits)

Satisfies Quantitative Reasoning for core:

- 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 or
- MA 16600 - Analytic Geometry And Calculus II
AND
- MA 16010 - Applied Calculus I or
- MA 16020 - Applied Calculus II

Required Physics Selective Courses (8 credits)

- PHYS 22000 - General Physics (*satisfies Science Selective for core*) and
- PHYS 22100 - General Physics (*satisfies Science Selective for core*)
OR
- PHYS 17200 - Modern Mechanics (*satisfies Science Selective for core*)
AND
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science Selective for core*) or
- PHYS 24100 - Electricity And Optics (*satisfies Science Selective for core*) and
- PHYS 25200 - Electricity And Optics Laboratory (*satisfies Science Selective for core*)
OR
- PHYS 23300 - Physics For Life Sciences I and
- PHYS 23400 - Physics For Life Sciences II

Required Statistics Courses (3 credits)

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

Required Chemistry Primary Area Courses (16-18 credits)

- CHM 25500 - Organic Chemistry
and
- CHM 25501 - Organic Chemistry Laboratory
or
- CHM 26505 - Organic Chemistry
and
- CHM 26500 - Organic Chemistry Laboratory
or
- CHM 26505
and
- CHM 26300 - Organic Chemistry Laboratory
or
- CHM 26100 - Organic Chemistry
and
CHM 26300
or
- MCMP 20400 - Organic Chemistry I

- CHM 25600 - Organic Chemistry
and
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry
and
- CHM 26600 - Organic Chemistry Laboratory
or
CHM 26605
and
- CHM 26400 - Organic Chemistry Laboratory
or
- CHM 26200 - Organic Chemistry
and
- CHM 26400
or
- MCMP 20500 - Organic Chemistry II

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

Required Supporting Area Courses (18 credits)

MUST BE APPROVED BY COLLEGE

Other Departmental/Program Course Requirements (18-31 credits)

- Calculus I Option - select from MA 16010 (*satisfies Quantitative Reasoning for core*) ♦
- Calculus Option II - select from MA 16020 (*satisfies Quantitative Reasoning for core*)

- ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy*) or
- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy*)

- Language I Option* (*Select courses COULD satisfy Human Cultures Humanities for core*) - Credit Hours: 0.00 - 4.00
- Language II Option* (*Select courses COULD satisfy Human Cultures Humanities for core*) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (*Select courses COULD satisfy Human Cultures Humanities for core*) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (*Select courses COULD satisfy Oral Communication for core*) - Credit Hours: 3.00-6.00
- Laboratory Science I Option -within major (*satisfies Science Selective for core*)
- Laboratory Science II Option -within major (*satisfies Science Selective for core*)
- 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
- General Education III Option (*Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core*) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Option -within major

- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience* (*Select courses COULD satisfies Science, Technology, and Society Selective for core*) - Credit Hours: 0.00 - 3.00

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

Electives (10-33 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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
- 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
- Free Elective - Credit Hours: 0.00 - 1.00

15-18 Credits

Spring 1st Year

- Calculus Option II - Credit Hours: 3.00 - 5.00
- Language I Option - Credit Hours: 3.00 - 4.00
- General Chemistry Selective II - Credit Hours: 4.00 - 5.00
- Biology Selective II - Credit Hours: 3.00 - 4.00

- Biology Selective II or Free Elective - Credit Hours: 0.00 - 2.00

15-18 Credits

Fall 2nd Year

- Organic Chemistry I with Lab - Credit Hours: 4.00 - 5.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Physics Selective I - Credit Hours: 4.00
- COM 21700 - Science Writing And Presentation or Technical Presentation - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15-17 Credits

Spring 2nd Year

- Organic Chemistry II with Lab - Credit Hours: 4.00 - 5.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- Physics Selective II - Credit Hours: 4.00
- Free Elective - Credit Hours: 1.00

15-17 Credits

Fall 3rd Year

- Supporting Course Area - Credit Hours: 3.00
- Supporting Course Area - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Option (recommend CS 17700 meets Teambuilding & Collaboration) - Credit Hours: 3.00 - 4.00
- General Education I Option - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- CHM 24100 - Introductory Inorganic Chemistry
- EAPS Selective Course - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- General Education II Option - Credit Hours: 3.00
- Technical Writing or Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- Supporting Area Course - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 3.00
- General Education III option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00 - 6.00

15-16 Credits

Spring 4th Year

- CHM 37200 - Physical Chemistry
- Great Issue Option - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free 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. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, 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 (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.

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (90-111 credits)

Required Interdisciplinary Core Courses (72-80 credits)

Required Biology Courses (7-8 credits)

- BIOL 11000 - Fundamentals Of Biology I (*satisfies Science Selective for core*)
and
- BIOL 11100 - Fundamentals Of Biology II (*satisfies Science Selective for core*)
OR
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior (*satisfies Science Selective for core*)
and
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms (*satisfies Science Selective for core*)
and
- BIOL 13500 - First year Biology Laboratory (*satisfies Science Selective for core*)

Required Chemistry Selective Courses (5-10 credits)

- CHM 11500 - General Chemistry (*satisfies Science Selective for core*)
or
- CHM 12500 - Introduction To Chemistry I (*satisfies Science Selective for core*)
AND
- CHM 11600 - General Chemistry (*satisfies Science Selective for core*)
or
- CHM 12600 - Introduction To Chemistry II (*satisfies Science Selective for core*)
or
- CHM 13600 - General Chemistry Honors (*satisfies Science Selective for core*)
OR

- 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 credits)

- EAPS 10000 - Planet Earth
or
- EAPS 10900 - The Dynamic Earth
or
- EAPS 11100 - Physical Geology
or
- EAPS 22100 - Survey Of Atmospheric Science
or
- EAPS 22500 - Science Of The Atmosphere
(*Select courses COULD satisfy Science Selective for core*)

Required Mathematics Courses (8-10 credits)

- MA 16010 - Applied Calculus I (*satisfies Quantitative Reasoning for core*)
and
- MA 16020 - Applied Calculus II (*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*)
AND
- MA 16200 - Plane Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*)
or
- MA 16600 - Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*)

Required Physics Selective Courses (8 credits)

- PHYS 22000 - General Physics (*satisfies Science Selective for core*)
and
- PHYS 22100 - General Physics (*satisfies Science Selective for core*)
OR
- PHYS 17200 - Modern Mechanics (*satisfies Science Selective for core*)
AND
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science Selective for core*)
or
- PHYS 24100 - Electricity And Optics (*satisfies Science Selective for core*)
and
- PHYS 25200 - Electricity And Optics Laboratory (*satisfies Science Selective for core*)

OR

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

Required Statistics Selective Courses (3 credits)

- STAT 35000 - Introduction To Statistics
or
- 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 (18-31 credits)

- Calculus I Option - select from MA 16010 (*satisfies Quantitative Reasoning for core*) ♦
- Calculus Option II - select from MA 16020 (*satisfies Quantitative Reasoning for core*)
- ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy*)
or
- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy*)

- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00-6.00
- Laboratory Science I Option (within major) (*satisfies Science Selective for core*)
- Laboratory Science II Option (within major) (*satisfies Science Selective for core*)
- 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
- General Education III Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics

- Computing Option (within major)
- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience* (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00

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

Electives (9-30 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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
- EAPS Selective Course - Credit Hours: 3.00
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 0.00 - 4.00

15-18 Credits

Spring 1st Year

- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
- CS 18000 - Problem Solving And Object-Oriented Programming
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00 - 4.00

15-17 Credits

Fall 2nd Year

- CS 18200 - Foundations Of Computer Science
- CS 24000 - Programming In C
- Supporting Area Course - Credit Hours: 3.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Technical Presentation (COM 21700) - 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
- Supporting Area Course - Credit Hours: 3.00
- General Education I Option - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- 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
- General Education II Option - Credit Hours: 3.00
- Free 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 II or free elective - Credit Hours: 4.00 - 5.00
- General Education III Option - Credit Hours: 3.00

- Free Elective - Credit Hours: 1.00

15-16 Credits

Fall 4th Year

- Supporting Area Course - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 3.00
- Biology Selective I - Credit Hours: 4.00
- Supporting Area Course - Credit Hours: 3.00
- Technical Writing or Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 0.00 - 2.00

15-18 Credits

Spring 4th Year

- Great Issue Option - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Free Elective - Credit Hours: 0.00 - 2.00
- Free Elective - Credit Hours: 6.00

15-17 Credits

Note

2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, 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.

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (88-110 credits)

Required Interdisciplinary Core Courses (70-79 credits)

Required Biology Courses (7-8 credits)

- BIOL 11000 - Fundamentals Of Biology I (*satisfies Science Selective for core*)
and
- BIOL 11100 - Fundamentals Of Biology II (*satisfies Science Selective for core*)
OR
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior (*satisfies Science Selective for core*)
and
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms (*satisfies Science Selective for core*)
and
- BIOL 13500 - First year Biology Laboratory (*satisfies Science Selective for core*)

Required Chemistry Selective Courses (5-10 credits)

- CHM 11500 - General Chemistry (*satisfies Science Selective for core*)

or

- CHM 12500 - Introduction To Chemistry I (*satisfies Science Selective for core*)
AND
- CHM 11600 - General Chemistry (*satisfies Science Selective for core*)
or
- CHM 12600 - Introduction To Chemistry II (*satisfies Science Selective for core*)
or
- CHM 13600 - General Chemistry Honors (*satisfies Science Selective for core*)
OR
- CHM 12901 - General Chemistry With A Biological Focus

Required Computing Option (3-4 credits)

- CS 15800 - C Programming
or
- CS 15900 - Programming Applications For Engineers
or
- CS 17700 - Programming With Multimedia Objects
or
- CS 18000 - Problem Solving And Object-Oriented Programming

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

- EAPS 11100 - Physical Geology (*satisfies Science Selective for core*)

Required Mathematics Courses (8-10 credits)

- MA 16010 - Applied Calculus I (*satisfies Quantitative Reasoning for core*)
and
- MA 16020 - Applied Calculus II (*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*)
AND
- MA 16200 - Plane Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*)
or
- MA 16600 - Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*)

Required Physics Selective Courses (8 credits)

- PHYS 22000 - General Physics (*satisfies Science Selective for core*)
and
- PHYS 22100 - General Physics (*satisfies Science Selective for core*)
OR
- PHYS 17200 - Modern Mechanics (*satisfies Science Selective for core*)
AND
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science Selective for core*)

or

- PHYS 24100 - Electricity And Optics (*satisfies Science Selective for core*)
and
- PHYS 25200 - Electricity And Optics Laboratory (*satisfies Science Selective for core*)
OR
- PHYS 23300 - Physics For Life Sciences I
and
- PHYS 23400 - Physics For Life Sciences II

Required Statistics Courses (3 credits)

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

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

- EAPS 10000 - Planet Earth
or
- EAPS 10900 - The Dynamic Earth
or
- EAPS 22100 - Survey Of Atmospheric Science
or
- EAPS 22500 - Science Of The Atmosphere

- 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

Other Departmental/Program Course Requirements (18-31 credits)

- Calculus I Option - select from MA 16010 (*satisfies Quantitative Reasoning for core*) ♦
- Calculus Option II - select from MA 16020 (*satisfies Quantitative Reasoning for core*)
- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy)

- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00-6.00
- Laboratory Science I Option (within major) (satisfies Science Selective for core)
- Laboratory Science II Option (within major) (satisfies Science Selective for core)
- 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
- General Education III Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Option (within major)
- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience* (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00

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

Electives (10-32 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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
- Fall only course option - EAPS 10000 or EAPS 10900
or
free elective - Credit Hours: 3.00
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 2.00

15-18 Credits

Spring 1st Year

- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
- Spring only course option of EAPS 22100
or
free elective - Credit Hours: 3.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 1.00
- Physics Selective I - Credit Hours: 4.00

15-17 Credits

Fall 2nd Year

- EAPS 11100 - Physical Geology
- Supporting Area Course- Credit Hours: 3.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Physics Selective II - Credit Hours: 4.00
- General Education I Option - Credit Hours: 3.00

16-17 Credits

Spring 2nd Year

- EAPS 11200 - Earth Through Time or 20000 level - Credit Hours 3.00
- COM 21700 - Science Writing And Presentation or Technical Presentation - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- STAT Option - Credit Hours: 3.00

- Computing Option - Credit Hours: 3.00 - 4.00

15-16 Credits

Fall 3rd Year

- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- General Education II Option - Credit Hours: 3.00
- Fall only course option EAPS 22500 or free elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

16-17 Credits

Spring 3rd Year

- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective II or free elective - Credit Hours: 4.00- 5.00
- General Education III Option - Credit Hours: 3.00
- EAPS 30000 level - CreditHours: 3.00
- Free Elective - Credit Hours: 3.00

16-17 Credits

Fall 4th Year

- Supporting Area Course - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 3.00
- Biology Selective I - Credit Hours: 4.00
- EAPS 30000 level - Credit Hours: 3.00
- Technical Writing or Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 0.00 - 2.00

15-18 Credits

Spring 4th Year

- Great Issue Option - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Free Elective - Credit Hours: 0.00 - 2.00
- EAPS 30000 level - Credit Hours: 3.00
- Free 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. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, 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.

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (89-112 credits)

Required Interdisciplinary Core Courses (71-81 credits)

Required Biology Courses (7-8 Credits)

Satisfies Science Selective for core:

- BIOL 11000 - Fundamentals Of Biology I
and
- BIOL 11100 - Fundamentals Of Biology II
OR
- 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

Required Chemistry Selective Courses (5-10 credits)

- CHM 11500 - General Chemistry (*satisfies Science Selective for core*)
or
- CHM 12500 - Introduction To Chemistry I (*satisfies Science Selective for core*)
AND
- CHM 11600 - General Chemistry (*satisfies Science Selective for core*)
or
- CHM 12600 - Introduction To Chemistry II (*satisfies Science Selective for core*)
or
- CHM 13600 - General Chemistry Honors (*satisfies Science Selective for core*)
OR
- CHM 12901 - General Chemistry With A Biological Focus

Required Computing Option (3-4 credits)

- CS 15800 - C Programming
or
- CS 15900 - Programming Applications For Engineers
or
- CS 17700 - Programming With Multimedia Objects
or
- CS 18000 - Problem Solving And Object-Oriented Programming

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

Select courses COULD satisfy Science Selective for core:

- EAPS 10000 - Planet Earth
or
- EAPS 10900 - The Dynamic Earth
or
- EAPS 11100 - Physical Geology

- or
- EAPS 22100 - Survey Of Atmospheric Science
- or
- EAPS 22500 - Science Of The Atmosphere

Required Mathematics Courses (8-10 credits)

Satisfies Quantitative Reasoning for core:

- MA 16010 - Applied Calculus I
- and
- MA 16020 - Applied Calculus II
- OR
- 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)

- PHYS 22000 - General Physics (*satisfies Science Selective for core*)
- and
- PHYS 22100 - General Physics (*satisfies Science Selective for core*)
- OR
- PHYS 17200 - Modern Mechanics (*satisfies Science Selective for core*)
- AND
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science Selective for core*)
- or
- PHYS 24100 - Electricity And Optics (*satisfies Science Selective for core*)
- and
- PHYS 25200 - Electricity And Optics Laboratory (*satisfies Science Selective for core*)
- OR
- PHYS 23300 - Physics For Life Sciences I
- and
- PHYS 23400 - Physics For Life Sciences II

Required Statistics Selective Courses (3 credits)

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

Required Mathematics Primary Area Courses (16-17 credits)

- MA 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus
- MA 35100 - Elementary Linear Algebra
- MA 36600 - Ordinary Differential Equations
or
- MA 26200 - Linear Algebra And Differential Equations
- MA 34100 - Foundations Of Analysis
or
- MA 44000 - Real Analysis Honors
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

Other Departmental/Program Course Requirements (18-31 credits)

- Calculus I Option - select from MA 16010 (*satisfies Quantitative Reasoning for core*) ♦
- Calculus Option II - select from MA 16020 (*satisfies Quantitative Reasoning for core*)
- ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy*)
or
- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy*)
- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00-6.00
- Laboratory Science I Option (within major) (*satisfies Science Selective for core*)
- Laboratory Science II Option (within major) (*satisfies Science Selective for core*)
- 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
- General Education III Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics

- Computing Option (within major)
- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience* (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00

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

Electives (8-31 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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
- Language I Option - Credit Hours: 3.00 - 4.00
- Physics Selective I - Credit Hours: 4.00
- Free 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
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Physics Selective II - Credit Hours: 4.00
- Free Elective - Credit Hours: 1.00

15-17 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus
- Supporting Area Course - Credit Hours: 3.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- EAPS Selective - Credit Hours: 3.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00
- Computing Option - Credit Hours: 3.00 - 4.00

16-18 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra
- STAT 35000 - Introduction To Statistics
or
- STAT 50300 - Statistical Methods For Biology
or
- STAT 51100 - Statistical Methods
- Supporting Area Course - Credit Hours: 3.00
- Technical Presentation (COM 21700) - Credit Hours: 3.00
- General Education I Option - 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
- General Education II Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

14-16 Credits

Spring 3rd Year

- MA Elective 30000+ - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective II or free elective - Credit Hours: 4.00 - 5.00
- General Education III Option - Credit Hours: 3.00
- Free 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 - Real Analysis Honors
- Supporting Area Course - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 3.00
- Biology Selective I - Credit Hours: 4.00
- Technical Writing or Free Elective - Credit Hours: 3.00

16 Credits

Spring 4th Year

- Great Issue Option - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Free Elective - Credit Hours: 2.00
- Free Elective - Credit Hours: 3.00

14-15 Credits

Note

2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, 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.

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (86-109 credits)

Required Interdisciplinary Core Courses (68-78 credits)

Required Biology Courses (7-8 credits)

- BIOL 11000 - Fundamentals Of Biology I (*satisfies Science Selective for core*)
and
- BIOL 11100 - Fundamentals Of Biology II (*satisfies Science Selective for core*)
OR
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior (*satisfies Science Selective for core*)
and
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms (*satisfies Science Selective for core*)
and
- BIOL 13500 - First year Biology Laboratory (*satisfies Science Selective for core*)

Required Chemistry Selective Courses (5-10 credits)

- CHM 11500 - General Chemistry (*satisfies Science Selective for core*)
or
- CHM 12500 - Introduction To Chemistry I (*satisfies Science Selective for core*)
And
- CHM 11600 - General Chemistry (*satisfies Science Selective for core*)
or
- CHM 12600 - Introduction To Chemistry II (*satisfies Science Selective for core*)
or
- CHM 13600 - General Chemistry Honors (*satisfies Science Selective for core*)
OR
- CHM 12901 - General Chemistry With A Biological Focus

Required Computing Option (3-4 credits)

- CS 15800 - C Programming
or
- CS 15900 - Programming Applications For Engineers
or
- CS 17700 - Programming With Multimedia Objects
or
- CS 18000 - Problem Solving And Object-Oriented Programming

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

- EAPS 10000 - Planet Earth
or
- EAPS 10900 - The Dynamic Earth
or
- EAPS 11100 - Physical Geology
or
- EAPS 22100 - Survey Of Atmospheric Science
or

- EAPS 22500 - Science Of The Atmosphere
(*Select courses COULD satisfy Science Selective for core*)

Required Mathematics Courses (8-10 credits)

- MA 16010 - Applied Calculus I (*satisfies Quantitative Reasoning for core*)
and
- MA 16020 - Applied Calculus II (*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*)
AND
- MA 16200 - Plane Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*)
or
- MA 16600 - Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*)

Required Physics Courses (8 credits)

- PHYS 17200 - Modern Mechanics (*satisfies Science Selective for core*)
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science Selective for core*)
or
- PHYS 24100 - Electricity And Optics (*satisfies Science Selective for core*)
and
- PHYS 25200 - Electricity And Optics Laboratory (*satisfies Science Selective for core*)

Required Statistics Courses (3 credits)

- STAT 35000 - Introduction To Statistics
or
- STAT 50300 - Statistical Methods For Biology
or
- 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.

Other Departmental/Program Course Requirements (18-31 credits)

- Calculus I Option - select from MA 16010 (*satisfies Quantitative Reasoning for core*) ♦
 - Calculus Option II - select from MA 16020 (*satisfies Quantitative Reasoning for core*)
 - ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy)
or
 - ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy)

 - Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
 - Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
 - Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
 - Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00-6.00
 - Laboratory Science I Option (within major) (satisfies Science Selective for core)
 - Laboratory Science II Option (within major) (satisfies Science Selective for core)
 - 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
 - General Education III Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core) - Credit Hours: 3.00
 - STAT 35000 - Introduction To Statistics
 - Computing Option (within major)
 - Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
 - Great Issues Option - Credit Hours: 3.00
 - Multidisciplinary Experience* (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00
- *Requirement may be met with a zero credit experiential learning option. See your advisor for more information.

Electives (11-34 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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

- PHYS 17200 - Modern Mechanics
- Language I Selective - Credit Hours: 3.00 - 4.00
- Free 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
- Language II Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15-17 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus

- PHYS 34200 - Modern Physics
or
- PHYS 34400 - Modern Physics

- Language Selective III - Credit Hours: 3.00 - 4.00
- Supporting Area Course - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-17 Credits

Spring 2nd Year

- PHYS 30000+ Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- General Education I Selective - Credit Hours: 3.00
- Computing Selective - Credit Hours: 3.00 - 4.00
- COM 21700 - Science Writing And Presentation
or
Technical Presentation - Credit Hours: 3.00
- Teambuilding Experience - Credit Hours: 0.00

15-16 Credits

Fall 3rd Year

- PHYS 30000+ Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- General Education II Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

16-17 Credits

Spring 3rd Year

- EAPS Selective - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective II or free elective - Credit Hours: 4.00 - 5.00
- General Education III Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

16-17 Credits

Fall 4th Year

- STAT Selective - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 0.00 - 4.00
- Biology Selective I - Credit Hours: 4.00
- Technical Writing or Free Elective - Credit Hours: 3.00

- Free Elective - Credit Hours: 2.00

15-18 Credits

Spring 4th Year

- Great Issue Selective - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Free Elective - Credit Hours: 0.00 - 2.00
- Free Elective - Credit Hours: 6.00

15-18 Credits

Note

2.0 Graduation GPA required for Bachelor of Science degree.

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, 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 (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.

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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

- Culture and Diversity
- 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 (85-95 credits)

Required Interdisciplinary Core Courses (67-77 credits)

Required Biology Courses (7-8 credits)

- BIOL 11000 - Fundamentals Of Biology I (*satisfies Science Selective for core*) and
- BIOL 11100 - Fundamentals Of Biology II (*satisfies Science Selective for core*)
OR
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior (*satisfies Science Selective for core*) and
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms (*satisfies Science Selective for core*) and
- BIOL 13500 - First year Biology Laboratory (*satisfies Science Selective for core*)

Required Chemistry Selective Courses (5-10 credits)

- CHM 11500 - General Chemistry (*satisfies Science Selective for core*) or
- CHM 12500 - Introduction To Chemistry I (*satisfies Science Selective for core*)
AND
- CHM 11600 - General Chemistry (*satisfies Science Selective for core*) or
- CHM 12600 - Introduction To Chemistry II (*satisfies Science Selective for core*) or
- CHM 13600 - General Chemistry Honors (*satisfies Science Selective for core*)
OR
- CHM 12901 - General Chemistry With A Biological Focus

Required Computing Option (3-4 credits)

- CS 15800 - C Programming or
- CS 15900 - Programming Applications For Engineers or
- CS 17700 - Programming With Multimedia Objects or
- CS 18000 - Problem Solving And Object-Oriented Programming

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

- EAPS 10000 - Planet Earth or
- EAPS 10900 - The Dynamic Earth or
- EAPS 11100 - Physical Geology or
- EAPS 22100 - Survey Of Atmospheric Science or
- EAPS 22500 - Science Of The Atmosphere
(*Select courses COULD satisfy Science Selective for core*)

Required Mathematics Courses (8-10 credits)

- 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*)
AND
- MA 16200 - Plane Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*) or
- MA 16600 - Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*)

Required Physics Selective Courses (8 credits)

- PHYS 22000 - General Physics (*satisfies Science Selective for core*) and
- PHYS 22100 - General Physics (*satisfies Science Selective for core*)
OR
- PHYS 17200 - Modern Mechanics (*satisfies Science Selective for core*) and
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science Selective for core*)
OR
- PHYS 24100 - Electricity And Optics (*satisfies Science Selective for core*) and
- PHYS 25200 - Electricity And Optics Laboratory (*satisfies Science Selective for core*)
OR
- PHYS 23300 - Physics For Life Sciences I and
- PHYS 23400 - Physics For Life Sciences II

Required Statistics Selective Courses (3 credits)

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

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
- 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.

Other Departmental/Program Course Requirements (18-31 credits)

- Calculus I Option - select from MA 16010 (satisfies Quantitative Reasoning for core) ♦
- Calculus Option II - select from MA 16020 (satisfies Quantitative Reasoning for core)
- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy) or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy)
- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00-6.00
- Laboratory Science I Option (within major) (satisfies Science Selective for core)
- Laboratory Science II Option (within major) (satisfies Science Selective for core)
- 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
- General Education III Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Option (within major)
- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience* (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00

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

Electives (12-35 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1

- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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
- Language I Option - Credit Hours: 3.00 - 4.00
- Physics Selective I - Credit Hours: 4.00
- Free 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
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Physics Selective II - Credit Hours: 4.00
- Free Elective - Credit Hours: 1.00

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

- Supporting Area Course - Credit Hours: 3.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- EAPS Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-17 Credits

Spring 2nd Year

- STAT 35000 - Introduction To Statistics
- Supporting Area Course - Credit Hours: 3.00
- Computing Option - Credit Hours: 3.00 - 4.00
- COM 21700 - Science Writing And Presentation
- General Education I Option - Credit Hours: 3.00
- Teambuilding and Collaboration Experience - Credit Hours: 3.00 - 4.00

15-16 Credits

Fall 3rd Year

- Free Elective - Credit Hours: 2.00
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective I - Credit Hours: 4.00 - 5.00
- General Education II Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-16 Credits

Spring 3rd Year

- Free Elective - Credit Hours: 3.00
- Supporting Area Course - Credit Hours: 3.00
- General Chemistry Selective II or Free Elective - Credit Hours: 4.00 - 5.00
- General Education III Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

16-17 Credits

Fall 4th Year

- STAT 51200 - Applied Regression Analysis
- Supporting Area Course - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 3.00
- Biology Selective I - Credit Hours: 4.00
- Technical Writing or Free Elective - Credit Hours: 3.00

- Free Elective - Credit Hours: 0.00 -2.00

15-18 Credits

Spring 4th Year

- STAT 51300 - Statistical Quality Control or
- STAT 51400 - Design Of Experiments

- Supporting Area Course - Credit Hours: 3.00
- Great Issue Option - Credit Hours: 3.00
- Biology Selective II - Credit Hours: 3.00 - 4.00
- Biology Selective II or Free Elective - Credit Hours: 0.00 - 2.00
- Free Elective - Credit Hours - 3.00

15-18 Credits

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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.

Degree Requirements

122 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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)

Required Chemistry Selective Courses (4-5 credits)

- CHM 11500 - General Chemistry
or
- CHM 12300 - General Chemistry For Engineers I
or
- CHM 12500 - Introduction To Chemistry I (satisfies Science selective for core and PHED Concentration Requirement)
OR
- CHM 11500 General Chemistry
or
- CHM 12500 Introduction To Chemistry I (satisfies Science Selective for core and CHED,ESSE Concentration Requirement)
OR
- CHM 12901 - General Chemistry With A Biological Focus (satisfies BIED Concentration Requirement)

Required Computing Option (3-4 credits)

- CS 15800 - C Programming (satisfies CHED, BIED, PHED Core requirement and BIED Concentration requirement)
or
- CS 17700 - Programming With Multimedia Objects (satisfies CHED, BIED, PHED, ESSE Core requirement and BIED Concentration requirement)
OR
- CS 15800 C Programming
or
- CS 17700 Programming With Multimedia Objects
or
- CS 18000 - Problem Solving And Object-Oriented Programming (satisfies BIED, PHED Concentration requirement)

Required Calculus Selective Courses (6-10 credits)

- MA 16010 - Applied Calculus I (satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)
- MA 16020 - Applied Calculus II (satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)
OR
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
or
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
AND
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
or
- MA 16600 - Analytic Geometry And Calculus II (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)

Required Physics Selective Courses (8 credits)

- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core//BIED,CHED, ESSE Concentrations)
or
- Honors version (PHED concentration requirement)
or
- PHYS 22000 - General Physics
- PHYS 27200 - Electric And Magnetic Interactions (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
or
- Honors version (PHED concentration requirement)
or
- PHYS 24100 - Electricity And Optics (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
and
- PHYS 25200 - Electricity And Optics Laboratory (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
or
- PHYS 22100 - General Physics
- PHYS 23300 - Physics For Life Sciences I (satisfies BIED Concentration)
- PHYS 23400 - Physics For Life Sciences II (satisfies BIED Concentration)

Required Statistics Selective Courses (3 credits)

- STAT 30100 - Elementary Statistical Methods (satisfies College of Science Core requirement for CHED, ESSE, PHED)
or
- STAT 50300 - Statistical Methods For Biology (satisfies BIED Concentration)

Educational Program Course Requirements (36 credits)

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

- EDCI 27000 - Introduction To Educational Technology And Computing
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education (satisfies Behavior/Social Science for University Core) (satisfies Language III/Culture/Diversity Option)
- EDPS 23500 - Learning And Motivation (satisfies Behavior/Social Science for University Core) (satisfies General Education III Option)
- EDPS 26500 - The Inclusive Classroom (satisfies Behavior/Social Science for University Core)
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Assessment Literacy NOTE: If EDPS XXXXX is offered (Secondary Classroom Management Course), students should make every attempt to take EDPS 32700 for 1 credit and EDPS XXXXX for 1 credit. If EDPS XXXXX is not offered, EDPS 32700 should be taken for 2 credits.
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools (satisfies Multidisciplinary Experience) - for CHED, ESSE, and PHED Concentrations or
- EDCI 42100 - The Teaching Of Biology In Secondary Schools (satisfies Multidisciplinary Experience) - for BIED
- EDCI 42800 - Teaching Science In The Middle And Junior High School
- EDCI 49800 - Supervised Teaching (Meets Teambuilding and Collaboration Experience LINK)

Other Departmental /Program Course Requirements (21-27 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
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy 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) - 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

Biology Concentration (37-38 credits)

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

- CHM 25500 - Organic Chemistry
Required courses for the Biology Concentration that a met within Department/Program requirements, but included in the content GPA for this concentration:
 - MA 16010/16100/16500
 - MA 16020/16200/16600
 - PHYS 23300/17200
 - PHYS 23400/27200 or PHYS 24100/25200
 - STAT 50300
 - CS 17700/15800
 - CHM 12901
and
 - CHM 25501 - Organic Chemistry Laboratory
or
 - CHM 26505 - Organic Chemistry
and
 - CHM 26300 - Organic Chemistry Laboratory

- CHM 25600 - Organic Chemistry
and
- CHM 25601 - Organic Chemistry Laboratory
or
- CHM 26605 - Organic Chemistry
and
- CHM 26400 - Organic Chemistry Laboratory

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior (satisfies Science, Technology & Society for Univ Core)
or
BIOL 19500: Biodiversity Ecology, & Behavior (2 credits)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms

or

BIOL 19500: Organismal Development & Physiology (3 credits)

- BIOL 13500 - First year Biology Laboratory
- or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
- or
- IT 22600 - Biotechnology Laboratory I
-
- 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

Biology Selectives (10 credits)

See Biology Supplement - One course may satisfy multiple requirements - MUST BE A TOTAL OF 10 CREDITS

- Intermediate Biology Selective - Credit Hours: 3.00 - 4.00
- Group A Selective - Credit Hours: 2.00 - 3.00
- Group B Selective - Credit Hours: 2.00 - 3.00
- 500 Level Biology Selective - Credit Hours: 3.00 - 4.00
- Biology Lab Selective - Credit Hours: 2.00 - 4.00

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior *^ (meets Science, Technology, Society Requirement)
- BIOL 13500 - First year Biology Laboratory ^

- CHM 12901 - General Chemistry With A Biological Focus *^
- Calc I Option*^ (MA 16010) - Credit Hours: 3.00
- Language I Option - Credit Hours: 3.00 *

15 Credits

Spring 2nd Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms ^
- Organic CHM I Selective^ - Credit Hours: 4.00
- Calc II Option*^ (MA 16020) - Credit Hours: 3.00
- Language II Option - Credit Hours: 3.00
- ENGL 10600 - First-Year Composition *
- or
- ENGL 10800 - Accelerated First-Year Composition *

16-17 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function ^
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function ^
- Organic CHM II Selective^ - Credit Hours: 4.00
- General Education I Option - Credit Hours: 3.00
- Technical Writing and Technical Presenting (COM 21700*) - 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
- EDCI 27000 - Introduction To Educational Technology And Computing
- General Education II Option - Credit Hours: 3.00

14 Credits

Fall 3rd Year

- Intermediate Biology Selective^ - Credit Hours: 3.00 - 4.00
- Group A Selective^ - Credit Hours: 2.00 - 3.00
- PHYS I Selective^ - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00

- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education * (Language III/Culture/Diversity Option)

18-20 Credits

Spring 3rd Year

- Group B Selective^ - Credit Hours: 3.00
- PHYS II Selective^ - Credit Hours: 4.00
- CS Option^ - Credit Hours: 3.00 - 4.00
- EDPS 23500 - Learning And Motivation * (General Education III Option)
- EDPS 26500 - The Inclusive Classroom

16-17 Credits

Fall 4th Year

- Biology Lab Selective(s)^ - Credit Hours: 2.00 - 4.00
- STAT 50300 - Statistical Methods For Biology
- 500 Level Biology Selective^ - Credit Hours: 3.00 - 4.00
- EDCI 42100 - The Teaching Of Biology In Secondary Schools (Multidisciplinary Experience)
- EDPS 32700 - Assessment Literacy

NOTE: If EDPS XXXXX is offered (Secondary Classroom Management Course), students should make every attempt to take EDPS 32700 for 1 credit and EDPS XXXXX for 1 credit. If EDPS XXXXX is not offered, EDPS 32700 should be taken for 2 credits.

13-16 Credits

Spring 4th Year

- EDCI 42800 - Teaching Science In The Middle And Junior High School
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 49800 - Supervised Teaching (Teambuilding and Collaboration Experience)

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.

*Satisfies a University Core Requirement

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 required to graduate (No grade below a C-)

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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.

Degree Requirements

131 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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)

Required Chemistry Selective Courses (4-5 credits)

- CHM 11500 - General Chemistry
or
- CHM 12300 - General Chemistry For Engineers I
or
- CHM 12500 - Introduction To Chemistry I (satisfies Science selective for core and PHED Concentration Requirement)
OR
- CHM 11500 General Chemistry
or

- CHM 12500 Introduction To Chemistry I (satisfies Science Selective for core and CHED,ESSE Concentration Requirement)
OR
- CHM 12901 - General Chemistry With A Biological Focus (satisfies BIED Concentration Requirement)

Required Computing Option (3-4 credits)

- CS 15800 - C Programming (satisfies CHED, BIED, PHED Core requirement and BIED Concentration requirement)
or
- CS 17700 - Programming With Multimedia Objects (satisfies CHED, BIED, PHED, ESSE Core requirement and BIED Concentration requirement)
OR
- CS 15800 C Programming
or
- CS 17700 Programming With Multimedia Objects
or
- CS 18000 - Problem Solving And Object-Oriented Programming (satisfies BIED, PHED Concentration requirement)

Required Calculus Selective Courses (6-10 credits)

- MA 16010 - Applied Calculus I (satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)
- MA 16020 - Applied Calculus II (satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)
OR
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
or
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
AND
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
or
- MA 16600 - Analytic Geometry And Calculus II (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)

Required Physics Selective Courses (8 credits)

- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core//BIED,CHED, ESSE Concentrations)
or
- Honors version (PHED concentration requirement)
or
- PHYS 22000 - General Physics
- PHYS 27200 - Electric And Magnetic Interactions (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
or
- Honors version (PHED concentration requirement)
or
- PHYS 24100 - Electricity And Optics (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
and

- PHYS 25200 - Electricity And Optics Laboratory (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
or
- PHYS 22100 - General Physics
- PHYS 23300 - Physics For Life Sciences I (satisfies BIED Concentration)
- PHYS 23400 - Physics For Life Sciences II (satisfies BIED Concentration)

Required Statistics Selective Courses (3 credits)

- STAT 30100 - Elementary Statistical Methods (satisfies College of Science Core requirement for CHED, ESSE, PHED)
or
- STAT 50300 - Statistical Methods For Biology (satisfies BIED Concentration)

Educational Program Course Requirements (36 credits)

- EDCI 27000 - Introduction To Educational Technology And Computing
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education (satisfies Behavior/Social Science for University Core) (satisfies Language III/Culture/Diversity Option)
- EDPS 23500 - Learning And Motivation (satisfies Behavior/Social Science for University Core) (satisfies General Education III Option)
- EDPS 26500 - The Inclusive Classroom (satisfies Behavior/Social Science for University Core)
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Assessment Literacy NOTE: If EDPS XXXXX is offered (Secondary Classroom Management Course), students should make every attempt to take EDPS 32700 for 1 credit and EDPS XXXXX for 1 credit. If EDPS XXXXX is not offered, EDPS 32700 should be taken for 2 credits.
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools (satisfies Multidisciplinary Experience) - for CHED, ESSE, and PHED Concentrations or
- EDCI 42100 - The Teaching Of Biology In Secondary Schools (satisfies Multidisciplinary Experience) - for BIED
- EDCI 42800 - Teaching Science In The Middle And Junior High School
- EDCI 49800 - Supervised Teaching (Meets Teambuilding and Collaboration Experience LINK)

Other Departmental /Program Course Requirements (24-28 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
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy 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) - 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
- Science, Technology & Society for University Core - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- CHM 19400 - Freshman Chemistry Orientation
CHM 19400 is only required for Chemistry (CHED) Concentration

Chemistry Concentration (39-46 credits)

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

- MA 26100 - Multivariate Calculus
Required courses for the Chemistry Concentration that a met within Department/Program requirements, but included in the content GPA for this concentration:
 - MA 16500/16100
 - MA 16600/16200
 - PHYS 17200
 - PHYS 27200 or PHYS 24100/25200
 - CHM 12500/11500
- or
- MA 27101 - Honors Multivariate Calculus
 - 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
 - CHM 26505 - Organic Chemistry
- or
- CHM 26100 - Organic Chemistry
- or
- CHM 26500 - Organic Chemistry Laboratory
- or
- CHM 26300 - Organic Chemistry Laboratory
- or
- CHM 26700 - Organic Chemistry Laboratory Honors
- or
- CHM 26200 - Organic Chemistry
- or
- CHM 26605 - Organic Chemistry
- or
- CHM 26600 - Organic Chemistry Laboratory
- or
- CHM 26400 - Organic Chemistry Laboratory
- or
- CHM 26800 - Organic Chemistry Laboratory Honors

- CHM 29400 - Sophomore Chemistry Seminar
- CHM 32100 - Analytical Chemistry I
or
- CHM 32300 - Analytical Chemistry I Honors
- CHM 24100 - Introductory Inorganic Chemistry
- CHM 34200 - Inorganic Chemistry
- CHM 37300 - Physical Chemistry
- CHM 37400 - Physical Chemistry
- CHM 33300 - Principles Of Biochemistry
or
- CHM 53300 - Introductory Biochemistry
or
- BCHM 56100 - General Biochemistry I

Physical Chemistry Laboratory (2 credits)

- CHM 37301 - Physical Chemistry Laboratory
and
- CHM 37401 - Physical Chemistry Laboratory
or
- CHM 37600 - Physical Chemistry Laboratory

Electives (0-3 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- Chemistry I (CHM 12500*[^] recommended) - Credit Hours: 5.00
- *[^] Calc I Option - Credit Hours: 5.00

- ENGL 10600 - First-Year Composition *
- or
- ENGL 10800 - Accelerated First-Year Composition

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

18 Credits

Spring 1st Year

- Chemistry II (CHM 12600[^] recommended) - Credit Hours: 5.00
- [^] Calc II Option - Credit Hours: 5.00
- Technical Writing/Technical Presentation (COM 21700* recommended) - Credit Hours: 3.00
- PHYS 17200 - Modern Mechanics [^] recommended

17 Credits

Fall 2nd Year

- CHM 26505 - Organic Chemistry [^]
- or
- CHM 26100 - Organic Chemistry

- CHM 26300 - Organic Chemistry Laboratory [^]
- [^] Calc III Option - Credit Hours: 4.00
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education * (Language III/Culture/Diversity Option)
- CHM 29400 - Sophomore Chemistry Seminar [^]

15 Credits

Spring 2nd Year

- 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
- CHM 24100 - Introductory Inorganic Chemistry ^
- Physics Option (PHYS 27200^ recommended) - Credit Hours: 4.00
- EDST 20010 - Educational Policies And Laws
- Language I Option - Credit Hours: 3.00 *

16 Credits

Fall 3rd Year

- CHM 37300 - Physical Chemistry ^
- CHM 37301 - Physical Chemistry Laboratory ^
- EDPS 23500 - Learning And Motivation * (General Education I Option)
- EDPS 26500 - The Inclusive Classroom
- STAT 30100 - Elementary Statistical Methods *
- General Education I Option - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- CHM 34200 - Inorganic Chemistry ^
- CHM 37400 - Physical Chemistry ^
- CHM 37401 - Physical Chemistry Laboratory ^
- General Education II Option - Credit Hours: 3.00
- Language II Option - Credit Hours: 3.00
- Science, Technology, & Society - Credit Hours: 3.00 *
- EDPS 32700 - Assessment Literacy
If EDPS XXXXX is offered (Secondary Classroom Management Course), students should make every attempt to take EDPS 32700 for 1 credit and EDPS XXXXX for 1 credit. If EDPS XXXXX is not offered, EDPS 32700 should be taken for 2 credits.

18 Credits

Fall 4th Year

- 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
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools (Multidisciplinary Experience)

- Computing Option - Credit Hours: 3.00 - 4.00
- Great Issues Option - Credit Hours: 3.00

16-17 Credits

Spring 4th Year

- EDCI 42800 - Teaching Science In The Middle And Junior High School
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 49800 - Supervised Teaching (Teambuilding and Collaboration Experience)

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.

*Satisfies a University Core Requirement

2.0 average in CHM courses required to graduate.

2.5 average in CHM concentration ^ courses required to graduate

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

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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.

Degree Requirements

129 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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)

- CHM 11500 - General Chemistry
or
- CHM 12300 - General Chemistry For Engineers I
or
- CHM 12500 - Introduction To Chemistry I (satisfies Science selective for core and PHED Concentration Requirement)
OR
- CHM 12901 - General Chemistry With A Biological Focus (satisfies BIED Concentration Requirement)

Required Science Education Core Courses (24-30 credits)

Required Chemistry Selective Courses (4-5 credits)

- CHM 11500 - General Chemistry
or
- CHM 12300 - General Chemistry For Engineers I
or
- CHM 12500 - Introduction To Chemistry I (satisfies Science selective for core and PHED Concentration Requirement)
OR
- CHM 11500 General Chemistry
or
- CHM 12500 Introduction To Chemistry I (satisfies Science Selective for core and CHED,ESSE Concentration Requirement)
OR
- CHM 12901 - General Chemistry With A Biological Focus (satisfies BIED Concentration Requirement)

Required Computing Option (3-4 credits)

- CS 15800 - C Programming (satisfies CHED, BIED, PHED Core requirement and BIED Concentration requirement)
or
- CS 17700 - Programming With Multimedia Objects (satisfies CHED, BIED, PHED, ESSE Core requirement and BIED Concentration requirement)
OR
- CS 15800 C Programming
or
- CS 17700 Programming With Multimedia Objects
or
- CS 18000 - Problem Solving And Object-Oriented Programming (satisfies BIED, PHED Concentration requirement)

Required Calculus Selective Courses (6-10 credits)

- MA 16010 - Applied Calculus I (satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)
- MA 16020 - Applied Calculus II (satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)
OR
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
or
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
AND
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
or
- MA 16600 - Analytic Geometry And Calculus II (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)

Required Physics Selective Courses (8 credits)

- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core//BIED,CHED, ESSE Concentrations)
or
- Honors version (PHED concentration requirement)
or
- PHYS 22000 - General Physics

- PHYS 27200 - Electric And Magnetic Interactions (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
or
- Honors version (PHED concentration requirement)
or
- PHYS 24100 - Electricity And Optics (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
and
- PHYS 25200 - Electricity And Optics Laboratory (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
or
- PHYS 22100 - General Physics

- PHYS 23300 - Physics For Life Sciences I (satisfies BIED Concentration)
- PHYS 23400 - Physics For Life Sciences II (satisfies BIED Concentration)

Required Statistics Selective Courses (3 credits)

- STAT 30100 - Elementary Statistical Methods (satisfies College of Science Core requirement for CHED, ESSE, PHED)
or
- STAT 50300 - Statistical Methods For Biology (satisfies BIED Concentration)

Educational Program Course Requirements (36 credits)

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

- EDCI 27000 - Introduction To Educational Technology And Computing
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education (satisfies Behavior/Social Science for University Core) (satisfies Language III/Culture/Diversity Option)
- EDPS 23500 - Learning And Motivation (satisfies Behavior/Social Science for University Core) (satisfies General Education III Option)
- EDPS 26500 - The Inclusive Classroom (satisfies Behavior/Social Science for University Core)
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Assessment Literacy
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems

- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools (satisfies Multidisciplinary Experience) - for CHED, ESSE, and PHED Concentrations
or
- EDCI 42100 - The Teaching Of Biology In Secondary Schools (satisfies Multidisciplinary Experience) - for BIED

- EDCI 42800 - Teaching Science In The Middle And Junior High School
- EDCI 49800 - Supervised Teaching (Meets Teambuilding and Collaboration Experience [LINK](#))

Other Departmental /Program Course Requirements (24-28 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
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy 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) - 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
- UCC Science, Technology & Society - Credit Hours: 3.00
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences
EAPS 13700 is required for ESSE concentration students only.

Earth Space Science Concentration (38 credits)

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

- CHM 11600 - General Chemistry
Required courses for the Earth Space Science Concentration that a met within Department/Program requirements, but included in the content GPA for this concentration:

- PHYS 17200/22000
- PHYS 27200/22100 or PHYS 24100/25200
- CHM 11500/12500
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
or
- EAPS 31900 - Exploring Earth Through Time

- EAPS 11800 - Introduction To Earth Sciences
or
- EAPS 11100 - Physical Geology
- EAPS 24300 - Earth Materials I (also satisfies Science Selective for University Core)
- EAPS 39000 - Geologic Field Methods
- EAPS 35300 - Earth Surface Processes
- EAPS 35400 - Plate Tectonics
- EAPS/ASTR Elective (could satisfy Science, Technology & Society for University Core) - Credit Hours: 9.00
- EAPS 49000 - Field Geology In Rocky Mountains or 3XXXX Geology Field Experience (6 credits)

EAPS/ASTR Elective

9 credits needed

- ASTR 26300 - Descriptive Astronomy: The Solar System
- ASTR 26400 - Descriptive Astronomy: Stars And Galaxies
- EAPS 10400 - Oceanography
- EAPS 10500 - The Planets
- EAPS 11500 - Dinosaurs
- EAPS 11600 - Earthquakes And Volcanoes
- EAPS 11700 - Introduction To Atmospheric Science
- EAPS 12000 - Introduction To Geography
- EAPS 13800 - Thunderstorms And Tornadoes
- EAPS 22100 - Survey Of Atmospheric Science
- EAPS 22500 - Science Of The Atmosphere

Electives (0-11 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science

- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- EAPS 11800 - Introduction To Earth Sciences ^ *
- MA 16100 - Plane Analytic Geometry And Calculus I ^ *
- CHM 11500 - General Chemistry ^ *
- ENGL 10600 - First-Year Composition *(1st or 2nd sem)

16 Credits

Spring 1st Year

- EAPS 11200 - Earth Through Time ^*
- or
- EAPS 10900 - The Dynamic Earth ^*
- or
- EAPS 31900 - Exploring Earth Through Time
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ^
- MA 16200 - Plane Analytic Geometry And Calculus II ^ *
- CHM 11600 - General Chemistry ^ *
- General Education I Option - Credit Hours: 3.00

16 Credits

Fall 2nd Year

- EAPS 24300 - Earth Materials I ^*
- PHYS 17200 - Modern Mechanics ^ *
- or
- PHYS 22000 - General Physics ^ *

- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education

14 Credits

Spring 2nd Year

- EAPS 35400 - Plate Tectonics
- PHYS 27200 - Electric And Magnetic Interactions
or
- PHYS 22100 - General Physics
- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom
- COM 21700 - Science Writing And Presentation

16 Credits

Fall 3rd Year

- EAPS 35300 - Earth Surface Processes
- STAT Statistics - Credit Hours: 3.00 *
- C S Computer Programming - Credit Hours: 4.00
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Assessment Literacy
NOTE: If EDPS XXXXX is offered (Secondary Classroom Management Course), students should make every attempt to take EDPS 32700 for 1 credit and EDPS XXXXX for 1 credit. If EDPS XXXXX is not offered, EDPS 32700 should be taken for 2 credits.
- Language I Option - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- EAPS 39000 - Geologic Field Methods
- EAPS/ASTR Elective - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00 *
- Language II Option - Credit Hours: 3.00
- EDCI 27000 - Introduction To Educational Technology And Computing

15 Credits

Summer 3rd Year

- EAPS 49000 - Field Geology In Rocky Mountains

6 Credits

Fall 4th Year

- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools
- EAPS/ASTR Elective - Credit Hours: 3.00
- EAPS/ASTR Elective - Credit Hours: 3.00
- Science, Technology, Society (STS) or Free Elective - Credit Hours: 3.00
- General Education II Option - Credit Hours: 3.00

15 Credits

Spring 4th Year

- EDCI 42800 - Teaching Science In The Middle And Junior High School
- 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.

*Satisfies a University Core Requirement

Students must earn a "C-" or better in all required ^ courses.

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 ≥ 2.5

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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.

Degree Requirements

127 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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](#)
- [Culture and Diversity](#)
- [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)

Required Chemistry Selective Courses (4-5 credits)

- CHM 11500 - General Chemistry
or
- CHM 12300 - General Chemistry For Engineers I
or
- CHM 12500 - Introduction To Chemistry I (satisfies Science selective for core and PHED Concentration Requirement)
OR
- CHM 11500 General Chemistry
or
- CHM 12500 Introduction To Chemistry I (satisfies Science Selective for core and CHED,ESSE Concentration Requirement)
OR
- CHM 12901 - General Chemistry With A Biological Focus (satisfies BIED Concentration Requirement)

Required Computing Option (3-4 credits)

- CS 15800 - C Programming (satisfies CHED, BIED, PHED Core requirement and BIED Concentration requirement)
or
- CS 17700 - Programming With Multimedia Objects (satisfies CHED, BIED, PHED, ESSE Core requirement and BIED Concentration requirement)
OR
- CS 15800 C Programming
or
- CS 17700 Programming With Multimedia Objects

or

- CS 18000 - Problem Solving And Object-Oriented Programming (satisfies BIED, PHED Concentration requirement)

Required Calculus Selective Courses (6-10 credits)

- MA 16010 - Applied Calculus I (satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)
 - MA 16020 - Applied Calculus II (satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)
- OR
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
- or
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
- AND**
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)
- or
- MA 16600 - Analytic Geometry And Calculus II (satisfies Quantitative Reasoning for core, ESSE, PHED Science Core requirements and BIED, CHED Concentration requirement)

Required Physics Selective Courses (8 credits)

- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core/BIED,CHED, ESSE Concentrations)
- or
- Honors version (PHED concentration requirement)
- or
- PHYS 22000 - General Physics
-
- PHYS 27200 - Electric And Magnetic Interactions (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
- or
- Honors version (PHED concentration requirement)
- or
- PHYS 24100 - Electricity And Optics (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations) and
 - PHYS 25200 - Electricity And Optics Laboratory (satisfies Science Selective for core//BIED,CHED, ESSE, PHED Concentrations)
- or
- PHYS 22100 - General Physics
-
- PHYS 23300 - Physics For Life Sciences I (satisfies BIED Concentration)
 - PHYS 23400 - Physics For Life Sciences II (satisfies BIED Concentration)

Required Statistics Selective Courses (3 credits)

- STAT 30100 - Elementary Statistical Methods (satisfies College of Science Core requirement for CHED, ESSE, PHED)
- or
- STAT 50300 - Statistical Methods For Biology (satisfies BIED Concentration)

Educational Program Course Requirements (36 credits)

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

- EDCI 27000 - Introduction To Educational Technology And Computing
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education (satisfies Behavior/Social Science for University Core) (satisfies Language III/Culture/Diversity Option)
- EDPS 23500 - Learning And Motivation (satisfies Behavior/Social Science for University Core) (satisfies General Education III Option)
- EDPS 26500 - The Inclusive Classroom (satisfies Behavior/Social Science for University Core)
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Assessment Literacy
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems

- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools (satisfies Multidisciplinary Experience) - for CHED, ESSE, and PHED Concentrations
or
- EDCI 42100 - The Teaching Of Biology In Secondary Schools (satisfies Multidisciplinary Experience) - for BIED

- EDCI 42800 - Teaching Science In The Middle And Junior High School
- EDCI 49800 - Supervised Teaching (Meets Teambuilding and Collaboration Experience [LINK](#))

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
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy 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) - 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
- Science, Technology and Society requirement for UCC - Credit Hours: 1.00 - 3.00

- MA 26100 - Multivariate Calculus (satisfies Quantitative Reasoning Selective for University Core)
or
- MA 27101 - Honors Multivariate Calculus

PHYS Major Selectives (12-13 credits)

- PHYS/ASTR ≥ 300 level - Credit Hours: 3.00

- PHYS 53600 - Electronic Techniques For Research
or
- PHYS 58000 - Computational Physics
- Science/Engineering \geq 300 level (met by Statistics Option) - Credit Hours: 0.00
- Science/Engineering \geq 300 level (could be met by Great Issues Option) - Credit Hours: 3.00

Physics Concentration (30-31 credits)

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

- CHM 11600 - General Chemistry
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)
or
- CHM 12600 - Introduction To Chemistry II
or
- CHM 12400 - General Chemistry For Engineers II
or
- CHM 13600 - General Chemistry Honors
- 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

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- PHYS 17200 - Modern Mechanics *^ (HONORS)
- CHM 11500 - General Chemistry *^
- MA 16100 - Plane Analytic Geometry And Calculus I *
- ENGL 10600 - First-Year Composition *

17 Credits

Spring 1st Year

- PHYS 27200 - Electric And Magnetic Interactions *^ (HONORS)
- CHM 11600 - General Chemistry *^
- MA 16200 - Plane Analytic Geometry And Calculus II *
- Language I Option - Credit Hours: 3.00 - 4.00 *

16-17 Credits

Fall 2nd Year

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

15-16 Credits

Spring 2nd Year

- PHYS 30700 - Mathematical Methods Of Physics II ^
- PHYS 42200 - Waves And Oscillations ^
- STAT 30100 - Elementary Statistical Methods * (Sci,Engr Selective)
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education * (Language III/Culture/Diversity Option)
- EDCI 27000 - Introduction To Educational Technology And Computing

18 Credits

Fall 3rd Year

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

18 Credits

Spring 3rd Year

- PHYS 36000 - Quantum Mechanics ^
- PHYS 53600 - Electronic Techniques For Research
- COM 21700 - Science Writing And Presentation *
- General Education III Option - Credit Hours: 3.00
- Science, Technology, and Society - Credit Hours: 1.00 - 3.00

13-16 Credits

Fall 4th Year

- PHYS,ASTR \geq 300 level - Credit Hours: 3.00
- EDCI 42400 - The Teaching Of Earth And Physical Science In The Secondary Schools (Multidisciplinary Experience)
- Great Issues Option (Sci, Engr selective) - Credit Hours: 3.00
- CS Option - Credit Hours: 3.00 - 4.00
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Assessment Literacy

NOTE: If EDPS XXXXX is offered (Secondary Classroom Management Course), students should make every attempt to take EDPS 32700 for 1 credit and EDPS XXXXX for 1 credit. If EDPS XXXXX is not offered, EDPS 32700 should be taken for 2 credits.

15-16 Credits

Spring 4th Year

- EDCI 42800 - Teaching Science In The Middle And Junior High School
- EDCI 30900 - Reading In Middle And Secondary Schools: Methods And Problems
- EDCI 49800 - Supervised Teaching (Teambuilding and Collaboration Experience)

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.

*Satisfies a University Core Requirement

2.0 average in PHYS/ ASTR courses required to graduate.

2.5 average in Physics Concentration ^ courses required to graduate

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

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

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.

Completing the LBC certificate requires that you:

- 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 and academic year resident assistant. Such an activity is worth 10 points.
- Accumulate a total of 24 points, with at least 4 points in each of 3 categories.

- 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. 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 intense 10-point activity described above.

http://science.purdue.edu/Current_Students/learning-beyond-the-classroom/details.html

Disclaimer

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

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

<https://www.bio.purdue.edu/People/faculty/index.php>

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 (Biology) Website

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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

*A 2.0 average is required in these courses

***Required Major Courses (41-44 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 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments Year 1 Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I

- 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 39500 - Special Assignments Macromolecules (Req. #9)
- BIOL 41500 - Introduction To Molecular Biology (Req #10)
- BIOL 42000 - Eukaryotic Cell Biology (Req #11)
- BIOL 59500 - Special Assignments Methods & Measurements in Biophysical Chemistry (Req. #12)
- Biology Selective (Req #13)
- Base Lab requirement (Req #14)
- BCHM 56100 - General Biochemistry I (Req #15)

- BCHM 56200 - General Biochemistry II (Req #16)

Other Departmental /Program Course Requirements (70-82 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- Organic CHM 1 Selective - Credit Hours: 4.00
- Organic CHM 2 Selective - Credit Hours: 4.00
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- ENGL 10600 - First-Year Composition (satisfies UC Core Written Communication and UC Core Information Literacy Selective)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies UC Core Written Communication and UC Core Information Literacy Selective)
- Language & Culture 1 Selective - Credit Hours: 3.00
- Language & Culture 2 Selective - Credit Hours: 3.00
- Language & Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies UC Core Oral Communication)
- General Education 1 Selective (satisfies UC Core Human Culture Behavioral/Social Science) - Credit Hours: 3.00
- General Education 2 Selective (satisfies UC Core Human Cultures Humanities) - Credit Hours: 3.00
- General Education 3 Selective - Credit Hours: 3.00
- Teambuilding & Collaboration Selective - Credit Hours: 0.00 - 3.00
- Great Issues in Science Selective - Credit Hours: 3.00
- Multidisciplinary Experience Selective - Credit Hours: 1.00 - 3.00

Analytical Chemistry Selective - Select from (3-4 credits)

- BCHM 22100 - Analytical Biochemistry
or
- CHM 32100 - Analytical Chemistry I

Physical Chemistry Selective - Select from (4-6 credits)

- CHM 37200 - Physical Chemistry
or
- CHM 37300 - Physical Chemistry
and
- CHM 37400 - Physical Chemistry

PHYS 1 Selective - Select from (4 credits)

(satisfies UC Core Science Selective)

- PHYS 23300 - Physics For Life Sciences I
or

- PHYS 17200 - Modern Mechanics

PHYS 2 Selective - Select from (4 credits)

- PHYS 23400 - Physics For Life Sciences II
- PHYS 27200 - Electric And Magnetic Interactions

Calculus 1 Selective - Select from (4-5 credits)

(satisfies UC Core Quantitative Reasoning Selective)

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

Calculus 2 Selective - Select from (4-5 credits)

- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
or
- MA 17300 - Calculus And Analytic Geometry II

Electives (0-9 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Degree Requirements

For supplemental information click here.

Program Requirements

Fall 1st Year

- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments Year 1 Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 4.00 - 5.00
- Language and Culture 1 Selective - Credit Hours: 4.00 - 5.00
- BIOL 11500 - Biology Resource Seminar (Recommended Elective)

17-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Organic Chem 1 Selective - Credit Hours: 4.00
- Calculus II Selective - Credit Hours: 4.00 - 5.00
- Language and Culture 2 Selective - Credit Hours: 3.00

- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition

17-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- Organic Chem 2 Selective - Credit Hours: 4.00
- Language and Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology

- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- PHYS 1 Selective - Credit Hours: 4.00
- BIOL 28600 - Introduction To Ecology And Evolution
- General Education 1 Selective - Credit Hours: 3.00
- BIOL 29300 - Sophomore Seminar: Planning Your Future In Biology (Recommended Elective)

15 Credits

Fall 3rd Year

- BCHM 56100 - General Biochemistry I (Req #16) (Req #9)
- BIOL 39500 - Special Assignments - Macromolecules
- PHYS 2 Selective - Credit Hours: 4.00
- General Education 2 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- BCHM 56200 - General Biochemistry II (Req #17)
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- BIOL 41500 - Introduction To Molecular Biology (Req #10)
- General Education 3 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- BIOL 39300 - Preparing For Your Future In Biology (Recommended Elective)

14-15 Credits

Fall 4th Year

- BIOL 42000 - Eukaryotic Cell Biology (Req #11)
- Analytical Chemistry Selective - Credit Hours: 3.00 - 4.00
- Multidisciplinary Experience Selective - Credit Hours: 1.00 - 3.00
- Biology Selective (Req #13) - Credit Hours: 2.00 - 3.00
- BIOL 59500 - Special Assignments - Methods & Measurements in Biophysical Chemistry (Req #12)

12-16 Credits

Spring 4th Year

- Physical Chemistry Selective - Credit Hours: 4.00
- STAT 50300 - Statistical Methods For Biology
- Great Issues in Science Selective - Credit Hours: 3.00
- Base Lab Requirement (Req #14) - Credit Hours: 2.00 - 4.00

- Free Elective - Credit Hours: 2.00

14-16 Credits

Note

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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 (Biology) Website

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (41-44 credits)

*A 2.0 average is required in these courses

***Required Major Courses (39-41 credits)**

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior (satisfies UC Core Science, Technology & Society Selective)
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments Year 1 Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- 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 39500 - Special Assignments Macromolecules (Req #9)
- BIOL 41500 - Introduction To Molecular Biology (Req #10)
- BIOL 42000 - Eukaryotic Cell Biology (Req #11)
- BIOL 59500 - Special Assignments Methods & Measurement in Biophysical Chemistry (Req. #12)
- Base Lab Requirement (Req #14)
- BCHM 56100 - General Biochemistry I (Req #15)
- BCHM 56200 - General Biochemistry II (Req #16)

***Major Selectives - Select course for each requirement (2-3 credits)**

- Biology Selective (Req #13) - Credit Hours: 2.00 - 3.00

Other Departmental /Program Course Requirements (67-88 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- Organic CHM 1 Selective - Credit Hours: 4.00
- Organic CHM 2 Selective - Credit Hours: 4.00
- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core)
- PHYS 27200 - Electric And Magnetic Interactions
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- ENGL 10600 - First-Year Composition (satisfies UC Core Written Communication and Information Literacy)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies UC Core Written Communication and Information Literacy)
- Language & Culture 1 Selective - Credit Hours: 3.00
- Language & Culture 2 Selective - Credit Hours: 3.00
- Language & Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies UC Core Oral Communication)
- General Education 1 Selective (satisfies UC Core Human Culture Behavioral/Social Science) - Credit Hours: 3.00
- General Education 2 Selective (satisfies UC Core Human Cultures Humanities) - Credit Hours: 3.00

- General Education 3 Selective - Credit Hours: 3.00
- Teambuilding and Collaboration Selective - Credit Hours: 0.00 - 3.00
- Great Issues in Science Selective - Credit Hours: 3.00
- Multidisciplinary Experience Selective - Credit Hours: 1.00 - 3.00

Analytical Chemistry Selective - Select from (0-4 credits)

- BCHM 22100 - Analytical Biochemistry
or
- CHM 32100 - Analytical Chemistry I

Physical Chemistry Selective - Select from (0-6 credits)

- CHM 37200 - Physical Chemistry
or
- CHM 37300 - Physical Chemistry
and
- CHM 37400 - Physical Chemistry

Biochemistry Honors Selective (4-6 credits)

- CHM 32100 - Analytical Chemistry I
or
- CHM 37300 - Physical Chemistry
and
- CHM 37400 - Physical Chemistry

Calculus 1 Selective - Select from (4-5 credits)

(satisfies Quantitative Reasoning Selective for core)

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

Calculus 2 Selective - Select from (4-5 credits)

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

Electives (0-12 credits)

University Core Requirements

- Human Cultures Humanities

- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Degree Requirements

For supplemental information click here.

Program Requirements

Fall 1st Year

- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 4.00 - 5.00
- Language and Culture 1 Selective - Credit Hours: 3.00
- Language/Culture 1 Selective - Credit Hours: 3.00
- BIOL 11500 - Biology Resource Seminar (Recommended Elective)

17-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Organic Chem 1 Selective - Credit Hours: 4.00
- Calculus II Selective - Credit Hours: 4.00 - 5.00
- Language and Culture 2 Selective - Credit Hours: 3.00

- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition

17-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- Organic Chem 2 Selective - Credit Hours: 4.00
- Language and Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- PHYS 17200 - Modern Mechanics
- BIOL 28600 - Introduction To Ecology And Evolution
- General Education 1 Selective - Credit Hours: 3.00
- BIOL 29300 - Sophomore Seminar: Planning Your Future In Biology (Recommended Elective)

14 Credits

Fall 3rd Year

- BCHM 56100 - General Biochemistry I
- BIOL 39500 - Special Assignments Macromolecules (Req. #9)
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- General Education 2 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- BCHM 56200 - General Biochemistry II
- PHYS 27200 - Electric And Magnetic Interactions
- BIOL 41500 - Introduction To Molecular Biology
- General Education 3 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- BIOL 39300 - Preparing For Your Future In Biology (Recommended Elective)

16 Credits

Fall 4th Year

- BIOL 42000 - Eukaryotic Cell Biology
- BIOL 59500 - Special Assignments Methods & Measurement in Biophysical Chemistry (Req. #9)
- Analytical Chemistry Selective - Credit Hours: 3.00 - 4.00
- Multidisciplinary Experience Selective - Credit Hours: 1.00 - 3.00
- Biology Selective - Credit Hours: 2.00 - 3.00

12-16 Credits

Spring 4th Year

- Physical Chemistry Selective - Credit Hours: 4.00
- STAT 50300 - Statistical Methods For Biology
- Great Issues in Science Selective - Credit Hours: 3.00
- Base Lab Requirement- Credit Hours: 2.00 - 4.00
- Free 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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity

- 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 (34-35 credits)

*A 2.0 average is required in these courses

***Required Major Courses (19 credits)**

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior (satisfies UC Core Science, Technology & Society Selective) [May also meet Multidisciplinary Experience requirement for Science core]
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- 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

***Intermediate Biology Course: Select One (3-4 credits)**

Cannot also be used for Major Selectives below.

- Intermediate Biology Selective (Req #9) - Credit Hours: 3.00 - 4.00

***Biology Selectives (12 credits)**

Can use one course for multiple requirements:

- Group A Selective (Req #10) - Credit Hours: 2.00 - 3.00
- Group B Selective (Req #10) - Credit Hours: 2.00 - 3.00
- Biology Selective 500 Level (Req #10) - Credit Hours: 2.00 - 4.00
- Base Lab Requirement (Req #10) - Credit Hours: 2.00 - 4.00

Other Departmental /Program Course Requirements (64-76 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- Organic CHM 1 Selective - Credit Hours: 4.00
- Organic CHM 2 Selective - Credit Hours: 4.00
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- PHYS 1 Selective - Select from PHYS 23300 or PHYS 17200 - Credit Hours: 4.00 (satisfies UC Core Science Selective)
- PHYS 2 Selective - Select from PHYS 23400 or PHYS 27200 - Credit Hours: 4.00
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective (may also meet Teambuilding and Collaboration for Science core) - Credit Hours: 3.00 - 4.00

- ENGL 10600 - First-Year Composition (satisfies UC Core Written Communication and Information Literacy)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies UC Core Written Communication and Information Literacy)

- Language & Culture 1 Selective - Credit Hours: 3.00
- Language & Culture 2 Selective - Credit Hours: 3.00
- Language & Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies UC Core Oral Communication)
- General Education 1 Selective (may satisfy UC Core Human Culture Behavioral/Social Science) - Credit Hours: 3.00
- General Education 2 Selective (may satisfy UC Core Human Cultures Humanities) - Credit Hours: 3.00
- General Education 3 Selective - Credit Hours: 3.00
- Great Issues in Science Selective (may also meet Teambuilding and Collaboration for Science core) - Credit Hours: 3.00
- Multidisciplinary Experience Selective - Credit Hours: 1.00 - 3.00

Calculus 1 Selective (3-5 credits)

(satisfies UC Core Quantitative Reasoning Selective)

- MA 16010 - Applied Calculus I
or
- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I

Calculus 2 Selective (3-5 credits)

- MA 16020 - Applied Calculus II
or
- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
or

- MA 17300 - Calculus And Analytic Geometry II

Electives (9-22 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Degree Requirements

Click here for additional lists.

Program Requirements

Fall 1st Year

- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 3.00 - 5.00
- Language and Culture 1 Selective - Credit Hours: 3.00
- BIOL 11500 - Biology Resource Seminar (Recommended Elective)

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Organic Chem 1 Selective - Credit Hours: 4.00
- Calculus II Selective - Credit Hours: 3.00 - 5.00
- Language and Culture 2 Selective - Credit Hours: 3.00

- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- Organic Chem 2 Selective - Credit Hours: 4.00
- Language and Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- BIOL 28600 - Introduction To Ecology And Evolution
- General Education 1 Selective - Credit Hours: 3.00
- BIOL 29300 - Sophomore Seminar: Planning Your Future In Biology (Recommended Elective)

14-15 Credits

Fall 3rd Year

- Intermediate Biology Selective (Req #9) - Credit Hours: 3.00
- Group A Selective (Req #10) - Credit Hours: 2.00 - 3.00
- PHYS 1 Selective - Credit Hours: 4.00
- General Education 2 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- Group B Selective (Req #10) - Credit Hours: 3.00
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- PHYS 2 Selective - Credit Hours: 4.00
- General Education 3 Selective - Credit Hours: 3.00
- BIOL 39300 - Preparing For Your Future In Biology (Recommended Elective)

14-15 Credits

Fall 4th Year

- Base Lab Requirement (Req #10) - Credit Hours: 2.00 - 4.00
- STAT 50300 - Statistical Methods For Biology
- Multidisciplinary Experience Selective - Credit Hours: 1.00 - 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 5.00

14-18 Credits

Spring 4th Year

- Biology Selective 500 Level (Req #10) - Credit Hours: 3.00
- Biology Selective (Req #10) - Credit Hours: 3.00
- Great Issues in Science Selective - Credit Hours: 3.00
- Elective - Credit Hours: 4.00
- Elective - Credit Hours: 3.00

15 Credits

Note

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (36-38 credits)

*A 2.0 average is required in these courses

***Required Major Courses (21-23 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 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I

- 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
- Base Lab Requirement (Req # 12) - Credit Hours: 2.00 - 4.00

***Major Selectives - Select one course for each requirement (15 credits)**

- Intermediate Requirement Selective (Req # 9) - Credit Hours: 3.00

- Cell/Molecular/Development Selective I (Req # 10) - Credit Hours: 3.00
- Cell/Molecular/Development Selective I (Req # 10) - Credit Hours: 3.00
- Cell/Molecular/Development Selective II (Req # 13) - Credit Hours: 3.00
- Biology Selective (Req # 14) - Credit Hours: 3.00

Other Departmental /Program Course Requirements (64-76 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- Organic CHM 1 Selective - Credit Hours: 4.00
- Organic CHM 2 Selective - Credit Hours: 4.00
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- PHYS 1 Selective - Select from PHYS 23300 or 17200 (satisfies Science Selective for core) - Credit Hours: 4.00
- PHYS 2 Selective - Select from PHYS 23400 or 27200 - Credit Hours: 4.00
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective - Credit Hours: 3.00 - 4.00

- ENGL 10600 - First-Year Composition (satisfies UC Core Written Communication and Information Literacy)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies UC Core Written Communication and Information Literacy)

- Language & Culture 1 Selective - Credit Hours: 3.00
- Language & Culture 2 Selective - Credit Hours: 3.00
- Language & Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)
- General Education 1 Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education 2 Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education 3 Selective - Credit Hours: 3.00
- Teambuilding & Collaboration Selective - Credit Hours: 0.00 - 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00

Calculus 1 Selective - Select from (3-5 credits)

(satisfies Quantitative Reasoning Selective for core)

- MA 16010 - Applied Calculus I
or
- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I

Calculus 2 Selective - Select from (3-5 credits)

- MA 16020 - Applied Calculus II
or
- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II

or

- MA 17300 - Calculus And Analytic Geometry II

Electives (6-20 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Degree Requirements

For additional lists click here.

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I

- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 3.00 - 5.00
- Language and Culture 1 Selective - Credit Hours: 3.00
- BIOL 11500 - Biology Resource Seminar (Recommended Elective)

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Organic Chem 1 Selective - Credit Hours: 4.00
- Calculus II Selective - Credit Hours: 3.00 - 5.00
- Language and Culture 2 Selective - Credit Hours: 3.00

- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- Organic Chem 2 Selective - Credit Hours: 4.00
- Language and Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- BIOL 28600 - Introduction To Ecology And Evolution
- General Education 1 Selective - Credit Hours: 3.00
- BIOL 29300 - Sophomore Seminar: Planning Your Future In Biology (Recommended Elective)

14-15 Credits

Fall 3rd Year

- Intermediate Requirement Selective (Req # 9) - Credit Hours: 3.00
- PHYS 1 Selective - Credit Hours: 4.00
- General Education 2 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- Cell/Molecular/Developmental Selective I (Req # 10) - Credit Hours: 3.00
- PHYS 2 Selective - Credit Hours: 4.00
- General Education 3 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 1.00
- BIOL 39300 - Preparing For Your Future In Biology (Recommended Elective)

15-16 Credits

Fall 4th Year

- Cell/Molecular/Developmental Selective I (Req # 10) - Credit Hours: 3.00
- Base Lab Requirement (Req # 12) - Credit Hours: 2.00 - 4.00
- STAT 50300 - Statistical Methods For Biology
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00
- Elective - Credit Hours: 3.00

12-16 Credits

Spring 4th Year

- BIOL Selective (Req # 14) - Credit Hours: 3.00
- Cell/Molecular/Development Selective II (Req # 13) - Credit Hours: 3.00
- Great Issues Selective - Credit Hours: 3.00
- Elective - Credit Hours: 4.00
- Elective - Credit Hours: 3.00

16 Credits

Note

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (36-42 credits)

*A 2.0 average is required in these courses

*Required Major Courses (28-30 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 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I

- 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 58000 - Evolution
- BIOL 59500 - Special Assignments Ecology
- BIOL 59500 - Special Assignments Lab in Ecology
- Base Lab Requirement - Credit Hours: 2.00 - 4.00

*Intermediate Biology Selective (3-4 credits)

Select one; cannot also be used for Major Selectives below

- Intermediate Biology Selective (Req #9) - Credit Hours: 3.00 - 4.00

***Major Selectives (5-8 credits)**

Select one unique course for each: one course may satisfy only one selective

- Ecology Selective (Req # 13) - Credit Hours: 3.00 - 4.00
- Biology Selective (Req # 14) - Credit Hours: 2.00 - 4.00

Other Departmental /Program Course Requirements (64-76 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- Organic CHM 1 Selective - Credit Hours: 4.00
- Organic CHM 2 Selective - Credit Hours: 4.00
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- PHYS 1 Selective - Select from PHYS 23300 or 17200 (satisfies Science Selective for core) - Credit Hours: 4.00
- PHYS 2 Selective - Select from PHYS 23400 or 27200 - Credit Hours: 4.00
- Calculus 1 Selective - Select from MA 16010, MA 16100, or MA 16500 - Credit Hours: 3.00 - 5.00 (*satisfies Quantitative Reasoning Selective for core*)
- Calculus 2 Selective- Select from MA 16020, MA 16200, MA 16600 or MA 17300 - Credit Hours 3.00 - 5.00
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective - Credit Hours: 3.00 - 4.00

- ENGL 10600 - First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)

- Language & Culture 1 Selective - Credit Hours: 3.00
- Language & Culture 2 Selective - Credit Hours: 3.00
- Language & Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)
- General Education 1 Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education 2 Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education 3 Selective - Credit Hours: 3.00
- Teambuilding & Collaboration Selective - Credit Hours: 0.00 - 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00

Electives (2-20 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science

- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Degree Requirements

For additional course listings click here.

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 3.00 - 5.00
- Language/Culture 1 Selective - Credit Hours: 3.00
- BIOL 11500 - Biology Resource Seminar

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Organic Chem 1 Selective - Credit Hours: 4.00
- Calculus II Selective - Credit Hours: 3.00 - 5.00
- Language/Culture 2 Selective - Credit Hours: 3.00
- ENGL 10600 - First-Year Composition
or

- ENGL 10800 - Accelerated First-Year Composition

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- Organic Chem 2 Selective - Credit Hours: 4.00
- Language/Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- BIOL 28600 - Introduction To Ecology And Evolution
- General Education 1 Selective - Credit Hours: 3.00
- BIOL 29300 - Sophomore Seminar: Planning Your Future In Biology recommended elective

14-15 Credits

Fall 3rd Year

- STAT 50300 - Statistical Methods For Biology
- PHYS 1 Selective - Credit Hours: 4.00
- General Education 2 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- BIOL 59500 - Special Assignments Ecology
- BIOL 59500 - Special Assignments Lab in Ecology

17 Credits

Spring 3rd Year

- Ecology Selective (Req # 14) - Credit Hours: 3.00 - 4.00
- PHYS 2 Selective - Credit Hours: 4.00
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- General Education 3 Selective - Credit Hours: 3.00

- BIOL 39300 - Preparing For Your Future In Biology (Recommended Elective)

14-16 Credits

Fall 4th Year

- Intermediate Biology Selective (Req #9) - Credit Hours: 3.00 - 4.00
- Base Lab Requirement (Req # 14) - Credit Hours: 2.00 - 4.00
- Biology Selective (Req # 15) - Credit Hours: 2.00 - 4.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

13-18 Credits

Spring 4th Year

- BIOL 58000 - Evolution
- Great Issues Selective - 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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (34-37 credits)

*A 2.0 average is required in these courses

*Required Major Courses (25-27 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 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 - Special Assignments 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- 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 44100 - Biology Senior Seminar In Genetics
- BIOL 48100 - Eukaryotic Genetics
- Base Lab Requirement - Credit Hours: 2.00 - 4.00

*Intermediate Biology Selective (3-4 credits)

Select one; cannot also be used for Major Selectives below

- Intermediate Biology Selective (Req #9) - Credit Hours: 3.00 - 4.00

*Major Selectives - Select course for each requirement (6 credits)

- 500 Level Biology Selective (Req # 14) - Credit Hours: 3.00
- Biology Selective (Req # 14) - Credit Hours: 3.00

Other Departmental /Program Course Requirements (64-76 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- Organic CHM 1 Selective - Credit Hours: 4.00
- Organic CHM 2 Selective - Credit Hours: 4.00
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- PHYS 1 Selective - Select from PHYS 23300 or 17200 (satisfies Science Selective for core) - Credit Hours: 4.00
- PHYS 2 Selective - Select from PHYS 23400 or 27200 - Credit Hours: 4.00
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective - Credit Hours: 3.00 - 4.00

- ENGL 10600 - First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)

- Language & Culture 1 Selective - Credit Hours: 3.00
- Language & Culture 2 Selective - Credit Hours: 3.00
- Language & Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)
- General Education 1 Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education 2 Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education 3 Selective - Credit Hours: 3.00
- Teambuilding & Collaboration Selective - Credit Hours: 0.00 - 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00

Calculus 1 Selective - Select from (3-5 credits)

(satisfies Quantitative Reasoning Selective for core)

- MA 16010 - Applied Calculus I
or
- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I

Calculus 2 Selective - Select from (3-5 credits)

- MA 16020 - Applied Calculus II
or
- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II

or

- MA 17300 - Calculus And Analytic Geometry II

Electives (7-22 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Requirements

Select here for additional lists.

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13500 - First year Biology Laboratory
- or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
- or
- BIOL 19500 - Special Assignments - 1st Year Bio Lab: Disease Ecology
- IT 22600 - Biotechnology Laboratory I
- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 3.00 - 5.00
- Language/Culture 1 Selective - Credit Hours: 3.00
- BIOL 11500 - Biology Resource Seminar - (recommended elective) - Credit Hours: 1.00

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Organic Chem 1 Selective - Credit Hours: 4.00
- Calculus II Selective - Credit Hours: 3.00 - 5.00
- Language/Culture 2 Selective - Credit Hours: 3.00
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- Organic Chem 2 Selective - Credit Hours: 4.00
- Language/Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- BIOL 28600 - Introduction To Ecology And Evolution
- General Education 1 Selective - Credit Hours: 3.00
- BIOL 29300 - Sophomore Seminar: Planning Your Future In Biology - (recommended elective). Credit Hours: 1.00

14-15 Credits

Fall 3rd Year

- Biology Selective (Req # 14) - Credit Hours: 3.00
- PHYS 1 Selective - Credit Hours: 4.00
- General Education 2 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- BIOL 48100 - Eukaryotic Genetics
- PHYS 2 Selective - Credit Hours: 4.00

- Computer Science Selective - Credit Hours: 3.00 - 4.00
- General Education 3 Selective - Credit Hours: 3.00
- BIOL 39300 - Preparing For Your Future In Biology - (recommended elective) Credit Hours: 1.00

14-15 Credits

Fall 4th Year

- Intermediate Biology Selective (Req #9) - Credit Hours: 3.00
- BIOL 44100 - Biology Senior Seminar In Genetics
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00
- STAT 50300 - Statistical Methods For Biology
- Elective - Credit Hours: 4.00
- Elective - Credit Hours: 3.00

15-17 Credits

Spring 4th Year

- Biology Selective 500 Level (Req # 14) - Credit Hours: 3.00
- Base Lab Requirement (Req #13) - Credit Hours: 2.00 - 4.00
- Great Issues Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

14-16 Credits

Notes

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (39 credits)

*A 2.0 average is required in these courses

*Required Major Courses (30 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 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 First Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- 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 30100 - Human Design: Anatomy And Physiology
- BIOL 30200 - Human Design: Anatomy And Physiology
- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology *Required/Meets Base Lab Requirement

*Major Selectives - Select course(s) for each requirement

- Health & Disease Selective (Req # 13) - Credit Hours: 3.00
- Biology Selective (Req # 14) - Credit Hours: 2.00 - 3.00
- Biology Selective 500 Level (Req # 14) - Credit Hours: 2.00 - 3.00
(Requirement #14 must total at least six credits)

Other Departmental /Program Course Requirements (70-79 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- Organic CHM 1 Selective - Credit Hours: 4.00
- Organic CHM 2 Selective - Credit Hours: 4.00
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- PHYS 1 Selective PHYS 23300 - Physics For Life Sciences IPHYS 17200 - Modern Mechanics - Credit Hours: 4.00
- PHYS 2 Selective PHYS 23400 - Physics For Life Sciences IIPHYS 27200 - Electric And Magnetic Interactions - Credit Hours: 4.00
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective - Credit Hours: 3.00 - 4.00

- ENGL 10600 - First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)

- Language & Culture 1 Selective - Credit Hours: 3.00
- Language & Culture 2 Selective - Credit Hours: 3.00
- Language & Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)
- General Education 1 Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education 2 Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education 3 Selective - Credit Hours: 3.00
- Teambuilding & Collaboration Selective - Credit Hours: 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00
- Pre-professional Selective - Credit Hours: 3.00

Calculus 1 Selective - Select from (3-5 credits)

(satisfies Quantitative Reasoning Selective for core)

- MA 16010 - Applied Calculus I
or
- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I

Calculus 2 Selective - Select from (3-5 credits)

- MA 16020 - Applied Calculus II
or
- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
or

- MA 17300 - Calculus And Analytic Geometry II

Electives (2-11 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Requirements

Select here for additional lists.

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 First Year Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 3.00 - 5.00
- Language/Culture 1 Selective - Credit Hours: 3.00
- BIOL 11500 (1 cr.) is a recommended elective

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Organic Chem 1 Selective - Credit Hours: 4.00
- Calculus II Selective - Credit Hours: 3.00 - 5.00
- Language/Culture 2 Selective - Credit Hours: 3.00
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- Organic Chem 2 Selective - Credit Hours: 4.00
- Language/Culture 3 Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- General Education 1 Selective - Credit Hours: 3.00
- BIOL 29300 (1 cr.) is a recommended elective.
- BIOL 28600 - Introduction To Ecology And Evolution

14-15 Credits

Fall 3rd Year

- BIOL 30100 - Human Design: Anatomy And Physiology
Biology Selective (Req # 14) - Credit Hours: 2.00 - 3.00
PHYS 1 Selective - Credit Hours: 4.00
General Education 2 Selective - Credit Hours: 3.00
Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- BIOL 30200 - Human Design: Anatomy And Physiology
- PHYS 2 Selective - Credit Hours: 4.00

- Computer Science Selective - Credit Hours: 3.00 - 4.00
- General Education 3 Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- BIOL 39300 is a recommended elective

17-18 Credits

Fall 4th Year

- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- STAT 50300 - Statistical Methods For Biology
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 - 17 Credits

Spring 4th Year

- Biology Selective 500 Level (Req # 14) - Credit Hours: 2.00 - 3.00
- Health & Disease Selective (Req # 13) - Credit Hours: 3.00
- Great Issues Selective - Credit Hours: 3.00
- Pre-professional Selective - Credit Hours: 3.00
- Elective - Credit Hours: 4.00

14-15 Credits

Note

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (55-59 credits)

*A 2.0 average is required in these courses

*Required Major Courses (42 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 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
BIOL 19500 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- 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 41600 - Viruses And Viral Disease
- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology (meets Base Lab requirement)
- BIOL 52900 - Bacterial Physiology
- MA 26100 - Multivariate Calculus
- CHM 26505 - Organic Chemistry
- CHM 26605 - Organic Chemistry
- CHM 26300 - Organic Chemistry Laboratory
- CHM 26400 - Organic Chemistry Laboratory

*Major Selectives - Select one course for each requirement (13-17 credits)

- Microbiology Selective I - Credit Hours: 3.00
- Microbiology Selective II - Credit Hours: 3.00
- Chemistry Selective - Credit Hours: 3.00
- Microbiology Honors Selective - Credit Hours: 0.00 - 4.00
- Microbiology Honors Selective - Credit Hours: 4.00

Other Departmental /Program Course Requirements (55-64 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- ENGL 10600 - First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)
- Language & Culture I Selective - Credit Hours: 3.00
- Language & Culture II Selective - Credit Hours: 3.00
- Language & Culture III Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)
- General Education I Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Selective - Credit Hours: 3.00
- Teambuilding & Collaboration Selective - Credit Hours: 0.00 - 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00

PHYS I Selective - Select from (4 credits)

(satisfies Science Selective for core)

- PHYS 23300 - Physics For Life Sciences I
or
- PHYS 17200 - Modern Mechanics

PHYS II Selective - Select from (4 credits)

- PHYS 23400 - Physics For Life Sciences II
or
- PHYS 27200 - Electric And Magnetic Interactions

Calculus I Selective - Select from (4-5 credits)

(satisfies Quantitative Reasoning Selective for core)

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

Calculus II Selective - Select from (4-5 credits)

- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
or
- MA 17300 - Calculus And Analytic Geometry II

Electives (0-10 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Requirements

Select here for additional lists.

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or

- BIOL 19500 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 4.00 - 5.00
- Language/Culture I Selective - Credit Hours: 3.00

16 - 17 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- Calculus II Selective - Credit Hours: 4.00 - 5.00
- Language/Culture II Selective - Credit Hours: 3.00
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition

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
- Language/Culture III Selective - Credit Hours: 3.00

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
- General Education I Selective - Credit Hours: 3.00

14 Credits

Fall 3rd Year

- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- PHYS I Selective - Credit Hours: 4.00
- General Education II Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 3rd Year

- BIOL 41600 - Viruses And Viral Disease
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- PHYS II Selective - Credit Hours: 4.00
- General Education III Selective - Credit Hours: 3.00

13 - 14 Credits

Fall 4th Year

- Microbiology Selective I - Credit Hours: 3.00
- Microbiology Honors Selective - Credit Hours: 4.00
- Microbiology Selective II - Credit Hours: 3.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00
- Elective - Credit Hours: 3.00

14-16 Credits

Spring 4th Year

- BIOL 52900 - Bacterial Physiology
- Microbiology Honors Selective - Credit Hours: 4.00
- Microbiology Selective II - Credit Hours: 3.00
- STAT 50300 - Statistical Methods For Biology
- Great Issues Selective - 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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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)

*A 2.0 average is required in these courses

***Required Major Courses (30 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 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I

- 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 41600 - Viruses And Viral Disease
- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology (meets Base Lab requirement)
- BIOL 52900 - Bacterial Physiology

***Major Selectives - Select one course for each requirement (6 credits)**

- Microbiology Selective I (Req # 13) - Credit Hours: 3.00
- Microbiology Selective II (Req # 15) - Credit Hours: 3.00

Other Departmental /Program Course Requirements (64-76 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- Organic CHM I Selective - Credit Hours: 4.00
- Organic CHM II Selective - Credit Hours: 4.00
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- ENGL 10600 - First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication for core); (satisfies Information Literacy Selective for core)
- Language & Culture I Selective - Credit Hours: 3.00
- Language & Culture II Selective - Credit Hours: 3.00
- Language & Culture III Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)
- General Education I Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Selective - Credit Hours: 3.00
- Teambuilding & Collaboration Selective - Credit Hours: 0.00 - 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00

PHYS I Selective - Select from (4 credits)

(satisfies Science Selective for core)

- PHYS 23300 - Physics For Life Sciences I
or

- PHYS 17200 - Modern Mechanics

PHYS II Selective - Select from (4 credits)

- PHYS 23400 - Physics For Life Sciences II
or
- PHYS 27200 - Electric And Magnetic Interactions

Calculus I Selective - Select from (3-5 credits)

(satisfies Quantitative Reasoning Selective for core)

- MA 16010 - Applied Calculus I
or
- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I

Calculus II Selective - Select from (3-5 credits)

- MA 16020 - Applied Calculus II
or
- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
or
- MA 17300 - Calculus And Analytic Geometry II

Electives (8-20 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Requirements

Select here for additional lists.

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 3.00 - 5.00
- Language/Culture I Selective - Credit Hours: 3.00
- BIOL 11500, Biology Resource Seminar, (1 cr.) is a recommended elective.

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Organic Chem I Selective - Credit Hours: 4.00
- Calculus II Selective - Credit Hours: 3.00 - 5.00
- Language/Culture II Selective - Credit Hours: 3.00

- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- Organic Chem II Selective - Credit Hours: 4.00
- Language/Culture III Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- BIOL 28600 - Introduction To Ecology And Evolution
- General Education I Selective - Credit Hours: 3.00
- BIOL 29300, Planning for Your Future in Biology, (1 cr.) is a recommended elective.

14-15 Credits

Fall 3rd Year

- BIOL 43800 - General Microbiology
- BIOL 43900 - Laboratory In General Microbiology
- PHYS I Selective - Credit Hours: 4.00
- General Education II Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

- BIOL 41600 - Viruses And Viral Disease
- PHYS II Selective - Credit Hours: 4.00
- BIOL 52900 - Bacterial Physiology
- General Education III Selective - Credit Hours: 3.00
- BIOL 39300, Preparing for Your Future in Biology, (1 cr.) is a recommended elective.

14 Credits

Fall 4th Year

- Microbiology Selective I (Req. #13) - Credit Hours 3.00
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00
- Elective - Credit Hours: 4.00
- Elective - Credit Hours: 4.00

15-18 Credits

Spring 4th Year

- STAT 50300 - Statistical Methods For Biology
- Microbiology Selective II (Req # 15) - Credit Hours: 3.00

- Great Issues Selective - 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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (34-36 credits)

*A 2.0 average is required in these courses

***Required Major Courses (23 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 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
BIOL 19500 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I

- 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 32800 - Principles Of Physiology

***Major Selectives - Select one course for each requirement (11-13 credits)**

- Neurobiology & Physiology Selective (Req # 10) - Credit Hours: 3.00
- 500 Level Neurobiology & Physiology Selective (Req # 10) - Credit Hours: 3.00
- Biology Selective (Req # 13) - Credit Hours: 3.00
- Base Lab Requirements (Req # 12) - Credit Hours: 2.00 - 4.00

Other Departmental /Program Course Requirements (64-76 credits)

- CHM 12901 - General Chemistry With A Biological Focus
- Organic CHM I Selective - Credit Hours: 4.00
- Organic CHM II Selective - Credit Hours: 4.00
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- STAT 50300 - Statistical Methods For Biology
- Computer Science Selective - Credit Hours: 3.00 - 4.00

- ENGL 10600 - First-Year Composition (satisfies Written Communication for core) (satisfies Information Literacy Selective for core)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication for core) (satisfies Information Literacy Selective for core)

- Language & Culture I Selective - Credit Hours: 3.00
- Language & Culture II Selective - Credit Hours: 3.00
- Language & Culture III Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)

- General Education I Selective (satisfies Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Selective (satisfies Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Selective - Credit Hours: 3.00
- Teambuilding & Collaboration Selective - Credit Hours: 0.00 - 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00

PHYS I Selective - Select from (4 credits)

(satisfies Science Selective for core)

- PHYS 23300 - Physics For Life Sciences I
or
- PHYS 17200 - Modern Mechanics

PHYS II Selective - Select from (4 credits)

- PHYS 23400 - Physics For Life Sciences II
or
- PHYS 27200 - Electric And Magnetic Interactions

Calculus I Selective - Select from (3-5 credits)

(satisfies Quantitative Reasoning Selective for core)

- MA 16010 - Applied Calculus I
or
- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I

Calculus II Selective - Select from (3-5 credits)

- MA 16020 - Applied Calculus II
or
- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
or
- MA 17300 - Calculus And Analytic Geometry II

Electives (8-22 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science

- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Requirements

Select here for additional lists.

Program Requirements

Fall 1st Year

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13500 - First year Biology Laboratory
or
- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
or
- BIOL 19500 1st Year Bio Lab: Disease Ecology
or
- IT 22600 - Biotechnology Laboratory I
- CHM 12901 - General Chemistry With A Biological Focus
- Calculus I Selective - Credit Hours: 3.00 - 5.00
- Language/Culture I Selective - Credit Hours: 3.00
- BIOL 11500, Biology Resource Seminar, (1 cr.) is a recommended elective.

16-18 Credits

Spring 1st Year

- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- Organic Chem I Selective - Credit Hours: 4.00
- Language/Culture II Selective - Credit Hours: 3.00
- Calculus II Selective - Credit Hours: 3.00 - 5.00
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition

16-19 Credits

Fall 2nd Year

- BIOL 23100 - Biology III: Cell Structure And Function
- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- Organic Chem II Selective - Credit Hours: 4.00
- Language/Culture III Selective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 2nd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- Chemistry Selective - Credit Hours: 3.00 - 4.00
- BIOL 28600 - Introduction To Ecology And Evolution
- General Education I Selective - Credit Hours: 3.00
- BIOL 29300, Planning for Your Future in Biology, (1 cr.) is a recommended elective.

14-15 Credits

Fall 3rd Year

- Neurobiology & Physiology Selective (Req # 10) - Credit Hours: 3.00
- PHYS I Selective - Credit Hours: 4.00
- General Education II Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- BIOL 32800 - Principles Of Physiology
- PHYS II Selective - Credit Hours: 4.00
- STAT 50300 - Statistical Methods For Biology
- General Education III Selective - Credit Hours: 3.00
- BIOL 39300, Preparing for Your Future in Biology, (1 cr.) is a recommended elective.

15 Credits

Fall 4th Year

- Biology Selective (Req # 13) - Credit Hours: 3.00
- Base Lab Requirement (Req # 11) - Credit Hours: 2.00 - 4.00
- Multidisciplinary Selective - Credit Hours: 1.00 - 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 4.00

13-17 Credits

Spring 4th Year

- Neurobiology & Physiology Selective 500 Level (Req # 10) - Credit Hours: 3.00
- Computer Science Selective - Credit Hours: 3.00 - 4.00
- Great Issues Selective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Note

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Disclaimer

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

Minor

Biological Sciences Minor

16-20 Credits Required

Part I Courses (7 - 8 credits)

Complete the following courses¹:

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
and
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
and
- BIOL 13500 or BIOL 14501 or BIOL 19500 (First Year Lab: Disease Ecology) or IT 22600
or
- BIOL 11000 - Fundamentals Of Biology I
and
- BIOL 11100 - Fundamentals Of Biology II (AP credit for BIOL 11000-11100 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 30200 - Human Design: Anatomy And Physiology
- BIOL 32800 - Principles Of Physiology
- BIOL 36700 - Principles Of Development
- BIOL 39500 - Special Assignments 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 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 51600 - Molecular Biology Of Cancer
- BIOL 51700 - Molecular Biology: Proteins
- BIOL 53300 - Medical Microbiology
- 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 Epigenetics of Health & Disease
- BIOL 59500 - Special Assignments Neurobiology in Learning & Memory
- BIOL 59500 - Special Assignments Methods & Measurement in Physical Biochemistry
- BIOL 59500 - Special Assignments Disease Ecology
- BIOL 59500 - Special Assignments Practical Biocomputing
- BIOL 59500 - Special Assignments Neural Mechanisms in Health & Disease

Part IV Laboratory Course (3 credits)

- BIOL 23200 - Laboratory In Biology III: Cell Structure And Function
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- BIOL 30200 - Human Design: Anatomy And Physiology
- BIOL 32800 - Principles Of Physiology
- BIOL 36701 - Principles Of Development Lab
- BIOL 39500 - Special Assignments Macromolecules
- AGRY 32100 - Genetics Laboratory

Option for Part I

IUPUI

- BIOL K1010 Concepts of Biology I
- BIOL K1030 Concepts of Biology II

Calumet

- BIOL 10100 Introductory Biology
- BIOL 10200 Introductory Biology

North Central (PNC)

- BIOL 12100 - Biology I: Diversity, Ecology, And Behavior
- BIOL 13100 - Biology II: Development, Structure, And Function Of Organisms
- BIOL 11600 Laboratory in Biology I: Diversity, Ecology and Behavior
- BIOL 11800 Laboratory in Biology II: Structure, Function and Development

Ft. Wayne (IPFW)

- BIOL 11700 Principles of Ecology and Evolution
- BIOL 11900 Principles of Structure and Function

Ft. Wayne (IPFW)

- BIOL 10800 Biology of Plants
- BIOL 10900 Biology of Animals

Alternatives to BIOL 13500

- BIOL 14501 - First Year Biology Laboratory With Neuro Research Project
- BIOL 14502 - First Year Biology Laboratory With Micro Research Project
- BIOL 19500 - Special Assignments Year I Bio Lab: Disease Ecology
- IT 22600 - Biotechnology Laboratory I

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.

¹ For acceptable regional campus options see below.

² For alternative choices to BIOL 13500, see below.

³ Either BIOL 32800 (Principles of Physiology) or BIOL 39500 (Macromolecules) alone or both BIOL 36700 and 36701 will meet the requirements for Parts III and IV of 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 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

<https://www.chem.purdue.edu/people/directory/faculty/>

Contact Information

Head: Professor Timothy Zwier

Graduate Admissions: Ms. Candice Kissinger, 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 (Chemistry) Website

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (81-86 credits)

- 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 26505 - Organic Chemistry
- CHM 26500 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory
- CHM 32100 - Analytical Chemistry I
- CHM 24100 - Introductory Inorganic Chemistry
- CHM 34200 - Inorganic Chemistry
- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 37401 - Physical Chemistry Laboratory
- CHM 37400 - Physical Chemistry
- 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
and
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
or
- AGRY 32000 - Genetics
and
- AGRY 32100 - Genetics Laboratory

- CHM 53300 - Introductory Biochemistry
- CHM 53800 - Molecular Biotechnology
- CHM 49900 - Special Assignments
- CHM 19400 - Freshman Chemistry Orientation
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 49400 - Junior-Senior Chemistry Seminar

- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning Selective for core)

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

- MA 26100 - Multivariate Calculus
- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core)

- PHYS 27200 - Electric And Magnetic Interactions (satisfies Science Selective for core)
or
- PHYS 24100 - Electricity And Optics
and
- PHYS 25200 - Electricity And Optics Laboratory

Other Departmental /Program Course Requirements (25-38 credits)

- ENGL 10600 - First-Year Composition (satisfies Written Communication for core) (satisfies Information Literacy Selective for core)
- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)
- Language I Selective - Credit Hours: 0.00 - 3.00
- Language II Selective - Credit Hours: 0.00 - 3.00
- Language and Culture III Selective (select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 3.00
- General Education I Selective (select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education II Selective (select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Selective (select courses could satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective (can be satisfied with a minor) - Credit Hours: 3.00
(select courses could satisfy Science, Technology and Society for core)

- STAT 30100 - Elementary Statistical Methods (satisfies Information Literacy Selective for core)
or
- STAT 35000 - Introduction To Statistics (satisfies Information Literacy Selective for core)
- CS 15800 - C Programming
or
- CS 17700 - Programming With Multimedia Objects

Electives (1-14 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- CHM 12500 - Introduction To Chemistry I *
- MA 16100 - Plane Analytic Geometry And Calculus I
- ENGL 10600 - First-Year Composition *
- CHM 19400 - Freshman Chemistry Orientation
- Language I - Credit Hours: 3.00 **

18 Credits

Spring 1st Year

- CHM 12600 - Introduction To Chemistry II
- MA 16200 - Plane Analytic Geometry And Calculus II
- Language II - Credit Hours: 3.00 **
- STS Elective*/Multidisciplinary - Credit Hours: 3.00

16 Credits

Fall 2nd Year

- CHM 26505 - Organic Chemistry
- CHM 26500 - Organic Chemistry Laboratory
- MA 26100 - Multivariate Calculus
- PHYS 17200 - Modern Mechanics
- CHM 29400 - Sophomore Chemistry Seminar

14 Credits

Spring 2nd Year

- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory
- PHYS 27200 - Electric And Magnetic Interactions
- General Education - Credit Hours: 3.00 **
- Language and Culture - 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 53300 - Introductory Biochemistry
- CHM 49900 - Special Assignments

- CS 17700 - Programming With Multimedia Objects **
or
- CS 15800 - C Programming **

- General Education - Credit Hours: 3.00

16-17 Credits

Spring 3rd Year

- BIOL 24100 - Biology IV: Genetics And Molecular Biology
- BIOL 24200 - Laboratory In Biology IV: Genetics And Molecular Biology
- CHM 53800 - Molecular Biotechnology
- CHM 49900 - Special Assignments
- CHM 24100 - Introductory Inorganic Chemistry
- CHM 49400 - Junior-Senior Chemistry Seminar

15 Credits

Fall 4th Year

- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 32100 - Analytical Chemistry I
- STAT 30100 - Elementary Statistical Methods **
- CHM 49900 - Special Assignments
- COM 21700 - Science Writing And Presentation

16 Credits

Spring 4th Year

- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- CHM 34200 - Inorganic Chemistry
- General Education - Credit Hours: 3.00 **
- Great Issues - Credit Hours: 3.00 **

13 Credits

Notes

*Satisfies a University Core Requirement

**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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (76-80 credits)

- 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 26505 - Organic Chemistry
- CHM 26500 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory
- CHM 32100 - Analytical Chemistry I
- CHM 24100 - Introductory Inorganic Chemistry
- CHM 34200 - Inorganic Chemistry
- CHM 34201 - Inorganic Chemistry Laboratory

- CHM 37300 - Physical Chemistry
- CHM 37400 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 37401 - Physical Chemistry Laboratory
- CHM 42400 - Analytical Chemistry II
- CHM 51300 - Chemical Literature
- CHM 53300 - Introductory Biochemistry
- CHM 19400 - Freshman Chemistry Orientation
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 49400 - Junior-Senior Chemistry Seminar
- CHM Elective - CHM 46200 or CHM 49900 or CHM 56000 or CHM 57900 or CHM 58100 or CHM 53800

- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning Selective for core)

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

- MA 26100 - Multivariate Calculus
- MA 26200 - Linear Algebra And Differential Equations
- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core)

- PHYS 27200 - Electric And Magnetic Interactions (satisfies Science Selective for core)
or
- PHYS 24100 - Electricity And Optics
and
- PHYS 25200 - Electricity And Optics Laboratory

Other Departmental /Program Course Requirements (27-38 credits)

- ENGL 10600 - First-Year Composition (satisfies UC Core Written Communication and Information Literacy Selective)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies UC Core Written Communication and Information Literacy Selective)

- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)
- Language I Selective - Credit Hours: 0.00 - 3.00
- Language II Selective - Credit Hours: 0.00 - 3.00
- Language and Culture III Selective (select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 3.00
- General Education I Selective (select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education II Selective (select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Selective (select courses could satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective (can be satisfied with a minor) - Credit Hours: 3.00 (select courses may satisfy the Science, Technology and Society for core)

- STAT 30100 - Elementary Statistical Methods (satisfies Information Literacy Selective for core)
or
- STAT 35000 - Introduction To Statistics (satisfies Information Literacy Selective for core)
- CS 15800 - C Programming
or
- CS 17700 - Programming With Multimedia Objects

Electives (2-17 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- CHM 12500 - Introduction To Chemistry I *
or
- CHM 11500 - General Chemistry
- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I
- ENGL 10600 - First-Year Composition *
- CHM 19400 - Freshman Chemistry Orientation
- Language I (may be test out) - Credit Hours: 3.00 **

18 Credits

Spring 1st Year

- 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
- Language II - Credit Hours: 3.00 **
- PHYS 17200 - Modern Mechanics

17 Credits

Fall 2nd Year

- CHM 26505 - Organic Chemistry
- CHM 26500 - Organic Chemistry Laboratory
- MA 26100 - Multivariate Calculus
- PHYS 27200 - Electric And Magnetic Interactions
- CHM 29400 - Sophomore Chemistry Seminar

14 Credits

Spring 2nd Year

- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory
- COM 21700 - Science Writing And Presentation
- MA 26200 - Linear Algebra And Differential Equations
- General Education - Credit Hours: 3.00 **

15 Credits

Fall 3rd Year

- CHM 32100 - Analytical Chemistry I
- STAT 30100 - Elementary Statistical Methods *
- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CS 17700 - Programming With Multimedia Objects **
or
- CS 15800 - C Programming **

14-15 Credits

Spring 3rd Year

- CHM 24100 - Introductory Inorganic Chemistry
- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- General Education - Credit Hours: 3.00 **
- CHM 51300 - Chemical Literature
- Language and Culture - Credit Hours: 3.00 **

15 Credits

Fall 4th Year

- CHM 53300 - Introductory Biochemistry
- CHM 42400 - Analytical Chemistry II
- Multidisc.**/STS Selective* - Credit Hours: 3.00
- General Education - Credit Hours: 3.00 **
- CHM 49400 - Junior-Senior Chemistry Seminar

14 Credits

Spring 4th Year

- CHM 34200 - Inorganic Chemistry
- CHM 34201 - Inorganic Chemistry Laboratory
- CHM Elective - Credit Hours: 3.00
- Great Issues - Credit Hours: 3.00 **
- Free elective - Credit Hours: 2.00

12 Credits

Notes

*Satisfies a University Core Requirement

**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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (60-64 credits)

- 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 26505 - Organic Chemistry
- CHM 26500 - Organic Chemistry Laboratory
- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory
- CHM 32100 - Analytical Chemistry I

- CHM 24100 - Introductory Inorganic Chemistry
- CHM 34200 - Inorganic Chemistry
- CHM 37300 - Physical Chemistry
- CHM 37400 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- CHM 37401 - Physical Chemistry Laboratory
- CHM 19400 - Freshman Chemistry Orientation
- CHM 29400 - Sophomore Chemistry Seminar
- CHM 49400 - Junior-Senior Chemistry Seminar

- MA 16100 - Plane Analytic Geometry And Calculus I
or
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning Selective for core)

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

- MA 26100 - Multivariate Calculus
- PHYS 17200 - Modern Mechanics (satisfies Science Selective for core)

- PHYS 27200 - Electric And Magnetic Interactions (satisfies Science Selective for core)
or
- PHYS 24100 - Electricity And Optics
and
- PHYS 25200 - Electricity And Optics Laboratory

Other Departmental /Program Course Requirements (28-38 credits)

- ENGL 10600 - First-Year Composition (satisfies Written Communication for core) (satisfies Information Literacy Selective for core)
- COM 21700 - Science Writing And Presentation (satisfies Oral Communication for core)
- Language I Selective - Credit Hours: 0.00 - 3.00
- Language II Selective - Credit Hours: 0.00 - 3.00
- Language and Culture III Selective (select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 3.00
- General Education I Selective (select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education II Selective (select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Selective (select courses could satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Selective (can be satisfied with a minor) - Credit Hours: 3.00
(select courses could satisfy Science, Technology and Society for core)

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

- CS 15800 - C Programming
or

- CS 17700 - Programming With Multimedia Objects

Electives (18-32 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Program Requirements

Fall 1st Year

- CHM 12500 - Introduction To Chemistry I *
- MA 16100 - Plane Analytic Geometry And Calculus I
- ENGL 10600 - First-Year Composition *
- CHM 19400 - Freshman Chemistry Orientation
- Language I (may be test out) - Credit Hours: 3.00 **

18 Credits

Spring 1st Year

- CHM 12600 - Introduction To Chemistry II
- MA 16200 - Plane Analytic Geometry And Calculus II
- Language II - Credit Hours: 3.00 **
- Science, Technology and Society - Credit Hours: 3.00

16 Credits

Fall 2nd Year

- CHM 26505 - Organic Chemistry

- CHM 26500 - Organic Chemistry Laboratory
- MA 26100 - Multivariate Calculus
- PHYS 17200 - Modern Mechanics
- CHM 29400 - Sophomore Chemistry Seminar

14 Credits

Spring 2nd Year

- CHM 26605 - Organic Chemistry
- CHM 26600 - Organic Chemistry Laboratory
- COM 21700 - Science Writing And Presentation
- PHYS 27200 - Electric And Magnetic Interactions
- General Education - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- CHM 32100 - Analytical Chemistry I
- STAT 30100 - Elementary Statistical Methods *
- General Education - Credit Hours: 3.00
- Free elective - Credit Hours: 3.00
- Free elective - Credit Hours: 2.00

15 Credits

Spring 3rd Year

- CHM 24100 - Introductory Inorganic Chemistry
- CS 17700 - Programming With Multimedia Objects
or
- CS 15800 - C Programming
- General Education - Credit Hours: 3.00 **
- Great Issues - Credit Hours: 3.00

13 - 14 Credits

Fall 4th Year

- CHM 37300 - Physical Chemistry
- CHM 37301 - Physical Chemistry Laboratory
- Multidisciplinary/Free elective - Credit Hours: 3.00 **
- Language and Culture - Credit Hours: 3.00

- Free elective - Credit Hours: 3.00
- CHM 49400 - Junior-Senior Chemistry Seminar

14 Credits

Spring 4th Year

- CHM 37400 - Physical Chemistry
- CHM 37401 - Physical Chemistry Laboratory
- CHM 34200 - Inorganic Chemistry
- Free elective - Credit Hours: 3.00
- Free elective - Credit Hours: 4.00 or 5.00

14 - 15 Credits

Notes

*Satisfies a University Core Requirement

**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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Chemistry Minor

16 Credits Required

Requirements for the Minor

The Chemistry Minor provides a strong background in Chemistry for students majoring in some other discipline

The 16 credits can come from Area 1 and/or Area 2 and/or Area 3 and/or Area 4 and any of the courses listed in the last block.

AREA 1: Organic Chemistry only one first semester and one second semester organic course, as described below.

AREA 2 and AREA 3: the OR which means one course or the other, both will not count.

TOTAL CREDITS OF AREA 1 + AREA 2 + AREA 3 + AREA 4 = 16 credits

Area 1 Organic Chemistry (0-10 credits)

- 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

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 53800 - Molecular Biotechnology
- CHM 58100 - Atmospheric Chemistry
- CHM 51300 - Chemical Literature
- CHM 49900 - Special Assignments (up to 3 cr)
- CHM 29000 - Selected Topics In Chemistry For Lower-Division Students Integrated Science
- 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 LISTED BELOW MUST BE TAKEN AT PURDUE UNIVERSITY WEST LAFAYETTE.

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.

Computer Science Website

Faculty

<https://www.cs.purdue.edu/people/faculty/index.html>

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, an Electrical Engineering course, 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 Website

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (59-63 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 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus
- 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 CoS Computing and Teambuilding requirement)
- 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 - (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)

- MA course with course number higher than MA 35100 OR STAT course with course number higher than 511. (STAT 416 is crosslisted with MA 416 and may be used to fill requirement). MA 35100 - Elementary Linear Algebra
- ECE 27000 - Introduction To Digital System Design
- CS 39700 - Honors Seminar
- CS 49700 - Honors Research Project (may use for Track Elective - see Track chairperson for approval)
- CS 50000 level course (may use for Track Elective - see Track chairperson for approval) - Credit Hours: 3.00

Other Departmental/Program Course Requirements (32-62 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)
- or
- HONR 19903 - Interdisciplinary Approaches In Writing (satisfies Written Communication and Information Literacy)
- or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy)
- Technical Writing Option (COM 21700 recommended) - Credit Hours: 0.00 - 3.00
- Technical Presenting Option (COM 21700 recommended) (may satisfy Oral Communication for core) - Credit Hours: 0.00 - 3.00
- Language I * - select from three options; select from list - Credit Hours: 0.00 - 4.00
- Language II * - select from three options; select from list - Credit Hours: 0.00 - 4.00
- Language and Culture III * - (may satisfy Human Cultures Humanities) select from three options; select from list - Credit Hours: 0.00 - 4.00
- General Education I - (may satisfy Human Culture Humanities and Behavioral/Social Science) select from list - Credit Hours: 3.00
- General Education II - (may satisfy Human Culture Humanities and Behavioral/Social Science) select from list - Credit Hours: 3.00
- General Education III - select from list - Credit Hours: 3.00
- Great Issues -select from list - Credit Hours: 3.00
- Multidisciplinary Experience * (may satisfy Science, Technology and Society) - select from list - Credit Hours: 0.00 - 3.00
- Teambuilding and Collaboration Experience * (CS 18000 meets requirement) - select from list - Credit Hours: 0.00 - 4.00
- Lab Science I selective - (satisfies Science) select from list - Credit Hours: 3.00 - 4.00
- Lab Science II selective - (may satisfy Science) select from list - Credit Hours: 3.00 - 4.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (satisfies Quantitative Reasoning) (must have C or better *to meet prerequisite for CS 18200*)
- or

- MA 16500 - Analytic Geometry And Calculus I ♦ (satisfies Quantitative Reasoning) (must have C or better *to meet prerequisite for CS 18200*)
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies Quantitative Reasoning)
or
- MA 16600 - Analytic Geometry And Calculus II (satisfies Quantitative Reasoning)
- STAT 35000 - Introduction To Statistics
or
- STAT 51100 - Statistical Methods

Electives (1-29 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 Seminar, and CS 39100 Junior Seminar are optional but recommended.

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

http://www.cs.purdue.edu/academic_programs/undergraduate/curriculum/bachelor/index.sxhtml

Fall 1st Year

- CS 18000 - Problem Solving And Object-Oriented Programming ♦ ***
- Free elective - CS 19300 - Tools recommended
- Free elective - CS 19100 - Freshman Resources Seminar recommended
- Free elective - Credit Hours: 1.00
- ENGL 10600 - First-Year Composition
or

- ENGL 10800 - Accelerated First-Year Composition
or
- HONR 19903 - Interdisciplinary Approaches In Writing
or
- Language level I - Credit Hours: 3.00 - 4.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦
or
- MA 16500 - Analytic Geometry And Calculus I ♦

15-16 Credits

Spring 1st Year

- CS 18200 - Foundations Of Computer Science ***
- CS 24000 - Programming In C ***
- General Education I - Credit Hours: 3.00
- RECOMMENDED: CS 19700 - Freshman Honors Seminar (Free elective - Credit Hours: 1.00)
- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition
or
- HONR 19903 - Interdisciplinary Approaches In Writing
or
- Language level I - Credit Hours: 3.00 - 4.00

15-16 Credits

Fall 2nd Year

- CS 25000 - Computer Architecture ***
- CS 25100 - Data Structures And Algorithms ***
- RECOMMENDED: CS 29100 - Sophomore Development Seminar - Free elective: Credit Hours: 1.00
- Language level II - Credit Hours: 3.00 - 4.00
- MA 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus

15-17 Credits

Spring 2nd Year

- CS 25200 - Systems Programming ***
- ECE 27000 - Introduction To Digital System Design
- MA 35100 - Elementary Linear Algebra
- Language level III or Culture course or Diversity course - Credit Hours: 3.00 - 4.00
- Free elective - Credit Hours: 1.00

15 Credits

Fall 3rd Year

- CS track requirement - Credit Hours: 3.00 ***
- CS track requirement - Credit Hours: 3.00 ***
- STAT 35000 - Introduction To Statistics
or
- STAT 51100 - Statistical Methods
- CS 39700 - Honors Seminar
- COM 21700 - Science Writing And Presentation (Recommended)
- Free elective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

- CS track requirement/elective - Credit Hours: 3.00 ***
- CS track requirement/elective - Credit Hours: 3.00 ***
- Great Issues - Credit Hours: 3.00
- General Education II - Credit Hours: 3.00
- MA with course number higher than MA 35100 OR STAT course with number higher than 511 - Credit Hours: 3.00

15 Credits

Fall 4th Year

- CS track elective - Credit Hours: 3.00 ***
- Lab Science I - Credit Hours: 3.00 - 4.00
- Multidisciplinary Experience/Science, Technology and Society - Credit Hours: 0.00 to 3.00
- General Education III - Credit Hours: 3.00
- CS 49700 - Honors Research Project

15-16 Credits

Spring 4th Year

- CS track elective - Credit Hours: 3.00 ***

- Lab Science II - Credit Hours: 3.00 - 4.00
- Free elective - Credit Hours: 3.00
- CS 50000 level - Credit Hours: 3.00
- Free elective - Credit Hours: 3.00

15-16 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](#)

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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, robotics, 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 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:

- Computational Science and Engineering Track (CSE)
- Computer Graphics and Visualization Track (CGV)
- Database and Information Systems Track (DBIS)
- Foundations of Computer Science Track (FCS)
- Machine Intelligence Track (MI)
- Programming Language Track (PL)
- Security Track
- Software Engineering Track
- Systems Programming Track (Systems)

This 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.

Computer Science Website

TSAP for Computer Science (Begin at Ivy Tech or Vincennes)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 CoS Computing and Teambuilding requirements) ♦
- 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 C or better in all courses) select from list LINK

- 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 (32-62 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)
or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy)
or
- HONR 19903 - Interdisciplinary Approaches In Writing (satisfies Written Communication and Information Literacy)
- Technical Writing Option* - (COM 21700 recommended) select from list - Credit Hours: 0.00 - 3.00
- Technical Presenting Option* - (COM 21700 recommended) (may satisfy Oral Communication) select from list - Credit Hours: 0.00 - 3.00
- Language I * - select from three options; select from list - Credit Hours: 0.00 - 4.00
- Language II * - select from three options; select from list - Credit Hours: 0.00 - 4.00
- Language and Culture III * - (may satisfy Human Cultures Humanities) select from three options; select from list - Credit Hours: 0.00 - 4.00
- General Education I - (may satisfy Human Culture Humanities and Behavioral/Social Science) select from list - Credit Hours: 3.00
- General Education II - (may satisfy Human Culture Humanities and Behavioral/Social Science) select from list - Credit Hours: 3.00
- General Education III - select from list - Credit Hours: 3.00
- Great Issues -select from list - Credit Hours: 3.00
- Multidisciplinary Experience * - (may satisfy Science, Technology & Society) select from list - Credit Hours: 0.00 - 3.00
- Teambuilding and Collaboration Experience * (CS 18000 meets requirement) - select from list - Credit Hours: 0.00 - 4.00
- Lab Science I selective - (satisfies Science) select from list - Credit Hours: 3.00 - 4.00

- Lab Science II selective - (may satisfy Science) select from list - Credit Hours: 3.00 - 4.00
- MA 16100 - Plane Analytic Geometry And Calculus I (satisfies Quantitative Reasoning) (must have C or better to meet prerequisite for CS 18200) ♦
or
- MA 16500 - Analytic Geometry And Calculus I (satisfies Quantitative Reasoning) (must have C or better to meet prerequisite for CS 18200) ♦
- MA 16200 - Plane Analytic Geometry And Calculus II (satisfies Quantitative Reasoning)
or
- MA 16600 - Analytic Geometry And Calculus II (satisfies Quantitative Reasoning)
- STAT 35000 - Introduction To Statistics
or
- STAT 51100 - Statistical Methods

Electives (8-42 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

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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
- Language level I - Credit Hours: 3.00 - 4.00
- CS 18000 - Problem Solving And Object-Oriented Programming ♦ *** (meets Computing and Teambuilding and Collaboration Requirement)
- Free elective (CS 19300 - Tools recommended) - Credit Hours: 1.00
- Free elective (CS 19100 - Freshman Resources Seminar recommended) - Credit Hours: 1.00
- Free elective - Credit Hours: 1.00

14-16 Credits

Spring 1st Year

- MA 16200 - Plane Analytic Geometry And Calculus II
or
- MA 16600 - Analytic Geometry And Calculus II
- Free elective - Credit Hours: 1.00 - 3.00
- CS 18200 - Foundations Of Computer Science ***
- CS 24000 - Programming In C ***
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition
- HONR 19903 - Interdisciplinary Approaches In Writing
or
- Language level I - Credit Hours: 3.00 - 4.00

14-16 Credits

Fall 2nd Year

- CS 25000 - Computer Architecture ***
- CS 25100 - Data Structures And Algorithms ***
- Language level II - Credit Hours: 3.00 - 4.00
- Free elective (CS 29100 - Sophomore Resources Seminar recommended) - Credit Hours: 1.00
- MA 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus

15-17 Credits

Spring 2nd Year

- MA 26500 - Linear Algebra
or
- MA 35100 - Elementary Linear Algebra
- CS 25200 - Systems Programming ***
- RECOMMENDED: COM 21700 - Credit Hours: 3.00
- Language level II or Culture course or Diversity course - Credit Hours: 3.00 - 4.00
- Free elective - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- Free elective- Credit Hours: 3.00
- General Education I - Credit Hours: 3.00
- Free elective (Recommended CS 39100 - Junior Resources Seminar) - Credit Hours: 1.00
- CS track requirement - Credit Hours: 3.00 ***
- CS track requirement - Credit Hours: 3.00 ***
- STAT 35000 - Introduction To Statistics
or
- STAT 51100 - Statistical Methods

16 Credits

Spring 3rd Year

- CS track requirement/elective - Credit Hours: 3.00 ***
- CS track elective/requirement - Credit Hours: 3.00 ***
- Great Issues - Credit Hours: 3.00
- General Education II - Credit Hours: 3.00
- Free elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- CS track elective - Credit Hours: 3.00 ***
- Lab Science I - Credit Hours: 3.00 - 4.00
- Multidisciplinary Experience/Science, Technology and Society - Credit Hours: 3.00
- General Education III - Credit Hours: 3.00
- Free elective - Credit Hours: 3.00

15-16 Credits

Spring 4th Year

- CS track elective - Credit Hours: 3.00 ***
- Lab Science II - Credit Hours: 3.00 - 4.00
- Free elective - Credit Hours: 3.00
- Free elective - Credit Hours: 3.00
- Free elective - Credit Hours: 3.00

15-16 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 Resources Seminar and CS 39100 Junior Resources Seminar are optional but recommended.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

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.

Degree Requirements

120 Credits Required

Data Science Major Courses (47-51 credits)

- MA 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus

- MA 35100 - Elementary Linear Algebra
- CS 18000 - Problem Solving And Object-Oriented Programming ♦ (*satisfies Computing and Teambuilding & Collaboration for COS core*)
- CS 18200 - Foundations Of Computer Science
- CS 19100 - Freshman Resources Seminar
- CS 19300 - Tools
- CS 38003 - Python Programming

- 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
- STAT 35500 - Statistics For Data Science
- STAT 41600 - Probability
- STAT 41700 - Statistical Theory

- 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)

- CS Elective I - Credit Hours: 3.00
- CS Elective II - Credit Hours: 3.00
- STAT Elective - Credit Hours: 3.00
- Capstone Course or Experience - Credit Hours: 0.00 to 3.00

Other Departmental/Program Course Requirements (45-55 credits)

- ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy for core*)
or
- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy for core*)
or

- HONR 19903 - Interdisciplinary Approaches In Writing (*satisfies Written Communication and Information Literacy for core*)
- CS 18000 - Problem Solving And Object-Oriented Programming
- Technical Writing- COM 21700 recommended (*may satisfy Oral Communication for core*) - Credit Hours: 3.00
- Technical Presentation - COM 21700 recommended (*may satisfy Oral Communication for core*) - Credit Hours: 3.00
- Language I* - Select 3 options from list - Credit Hours: 3.00 to 4.00
- Language II* - Select 3 options from list - Credit Hours: 3.00 to 4.00
- Language and Culture III - (*may satisfy Human Cultures Humanities for core*) select from list - Credit Hours: 3.00 to 4.00
- General Education I - (*may satisfy Human Cultures Humanities and Behavioral/Social Science for core*) select from list- Credit Hours 3.00
- General Education II - (*may satisfy Human Cultures Humanities and Behavioral/Social Science for core*) select from list- Credit Hours 3.00
- General Education III - (*may satisfy Human Cultures Humanities and Behavioral/Social Science for core*) select from list- Credit Hours 3.00
- Great Issues - select from list - Credit Hours: 3.00
- Multidisciplinary Experience (*may satisfy Science, Technology, & Society for core*) -Credit Hours 1.00 - 3.00
- Teambuilding and Collaboration Experience (*CS 18000 meets requirement*) or select from list
- Lab Science I selective - (*satisfies Science for core*) Credit Hours: 3.00 to 4.00
- Lab Science II selective - (*may satisfy Science for core*) Credit Hours: 3.00 to 4.00
- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*) - *must have C or better to meet prereq for CS 18200*
or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*) - *must have C or better to meet prereq for CS 18200*
- MA 16200 - Plane Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*)
or
- MA 16600 - Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning for core*)

Electives (14-28 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

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 ♦

- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition
or
- HONR 19903 - Interdisciplinary Approaches In Writing
or
- Language 10100 - Credit Hours: 3.00 - 4.00

- Free Elective - Credit Hours: 1.00

14-16 Credits

Spring 1st Year

- CS 18200 - Foundations Of Computer Science *
- CS 38003 - Python Programming
- General Education I - Credit Hours 3.00

- MA 16200 - Plane Analytic Geometry And Calculus II ♦
or
- MA 16600 - Analytic Geometry And Calculus II

- Language 10100 - Credit Hours: 3.00 to 4.00
or
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition
or
- HONR 19903 - Interdisciplinary Approaches In Writing

14-16 Credits

Fall 2nd Year

- CS 24200 - Introduction To Data Science *
- STAT 35500 - Statistics For Data Science
- Language 10200 - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 1.00 - 3.00

- MA 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus

14-18 Credits

Spring 2nd Year

- CS 25100 - Data Structures And Algorithms *
- MA 35100 - Elementary Linear Algebra
- Language 20100/ Culture or Diversity Course - Credit Hours: 3.00 - 4.00
- STAT 41600 - Probability
- Science, Technology, and Society - Credit Hours: 1.00 to 3.00

13-16 Credits

Fall 3rd Year

- CS 37300 - Data Mining And Machine Learning
- STAT 41700 - Statistical Theory
- COM 21700 - Science Writing And Presentation
- General Education II - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 3rd Year

- CS Elective I - Credit Hours: 3.00
- STAT Elective - Credit Hours: 3.00
- Great Issues - Credit Hours: 3.00
- General Education III - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- CS 49000 - Topics In Computer Sciences For Undergraduates (course must be titled: Large Scale Data Analytics (LSDA))
- CS Elective II - Credit Hours: 3.00
- Lab Science I - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Spring 4th Year

- Capstone Experience/Course - Credit Hours: 0.00 - 3.00
- Lab Science II - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

12-16 Credits

Notes

A minimum of 32 semester credits of upper level (300000+) required

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 better.

All prerequisites to CS core courses and track requirements, regardless of department, must be completed with a grade of "C" or better.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

16-18 Credits Required

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 5 on the AP Computer Science test, or receive a 4 on the AP Computer Science test and pass the CS 18000 test-out exam) **and**
- For the Fall 2016 semester, one of the following courses
 - MA 16100 or MA 16500 or (MA 22300 and MA 22400)
 - **or**, prior to the Fall 2016 semester, MA 16300, or MA 16700, or (MA 22100 and MA 22200), 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 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

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 (6-8 credits)

Choose two of the following

- 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 (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 following Elective Courses.

^Math majors may use MA 37500 in place of CS 18200 as a pre-requisite for other CS courses, but Math 37500 will not count toward the five (5) CS courses. In this case, the student must choose three of the following Elective Courses.

Disclaimer

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

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

<http://www.eaps.purdue.edu/people/faculty.html>

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 electives 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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 credits)

Required Major Courses (37 credits)

- EAPS 11700 - Introduction To Atmospheric Science ♦ (*satisfies Science*)
- EAPS 100-level Earth System Elective - Credit Hours: 3.00 ♦
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- EAPS 22500 - Science Of The Atmosphere ♦ (*satisfies Science*)
- EAPS 22600 - Introduction To Atmospheric Science Research
- EAPS 32000 - Physics Of Climate
- EAPS 42100 - Atmospheric Thermodynamics
- EAPS 43100 - Synoptic Laboratory I
- EAPS 42200 - Atmospheric Dynamics I
- EAPS 42300 - Atmospheric Dynamics II
- EAPS 43200 - Synoptic Laboratory II
- EAPS 43300 - Synoptic Lab III
- EAPS 53200 - Atmospheric Physics I
- EAPS 50900 - Data Analysis Techniques In Earth And Atmospheric Sciences
- EAPS 49700 - Earth And Atmospheric Sciences Undergraduate Readings And Research Credit Hours: 3.00

Other Departmental/Program Course Requirements (65-74 credits)

- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*)
or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*)
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*satisfies Quantitative Reasoning*)
or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*satisfies Quantitative Reasoning*)
- MA 26100 - Multivariate Calculus (*satisfies Quantitative Reasoning*)
- MA 26600 - Ordinary Differential Equations (*satisfies Quantitative Reasoning*)
- CHM 11500 - General Chemistry ♦ (*satisfies Science*)
- CHM 11600 - General Chemistry ♦ (*satisfies Science*)
- PHYS 17200 - Modern Mechanics ♦ (*satisfies Science and Teambuilding & Collaboration Experience*)
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science*)
- CS 17700 - Programming With Multimedia Objects (*satisfies Teambuilding & Collaboration Experience*)

Statistics Selective

(*satisfies Information Literacy*)

- EAPS 31000 - Introductory Statistics For Geosciences
(recommended)
or
- STAT 30100 - Elementary Statistical Methods
or
- STAT 35000 - Introduction To Statistics
or
- STAT 50300 - Statistical Methods For Biology
or
- STAT 51100 - Statistical Methods
- ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy*)
or

- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy*)
- COM 21700 - Science Writing And Presentation (*satisfies Oral Communication*)
- Language I Selective - Credit Hours: 3.00 - 4.00
- Language II Selective - Credit Hours: 3.00 - 4.00
- Language III/Culture/Diversity Selective - Credit Hours: 3.00 - 4.00
- General Education I Selective - Credit Hours: 3.00 (*could satisfy Human Cultures: Behavioral/Social Science*)
- General Education II Selective - Credit Hours: 3.00 (*could satisfy Human Cultures: Humanities*)
- General Education III Selective - Credit Hours: 3.00 (*could satisfy Human Cultures: Behavioral/Social Science*)
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Experience Selective - Credit Hours: 3.00 (*satisfied by Science, Technology, & Society*)

Free Electives (9-18 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

<http://www.eaps.purdue.edu>

Fall 1st Year

- EAPS 11700 - Introduction To Atmospheric Science ♦*
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- CHM 11500 - General Chemistry ♦*
- 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 *

15-17 Credits

Spring 1st Year

- MA 16200 - Plane Analytic Geometry And Calculus II ♦*
- or
- MA 16600 - Analytic Geometry And Calculus II ♦*

- CHM 11600 - General Chemistry ♦*
- EAPS 100-level Earth System Elective - Credit Hours: 3.00 ♦
- Language I Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15-16 Credits

Fall 2nd Year

- EAPS 22500 - Science Of The Atmosphere ♦*
- MA 26100 - Multivariate Calculus *
- PHYS 17200 - Modern Mechanics ♦*
- EAPS 22600 - Introduction To Atmospheric Science Research
- Language II Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

- EAPS 32000 - Physics Of Climate
- EAPS 43100 - Synoptic Laboratory I
- MA 26600 - Ordinary Differential Equations *
- PHYS 27200 - Electric And Magnetic Interactions *
- Language III/Culture/Diversity Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15 Credits

Fall 3rd Year

- EAPS 42100 - Atmospheric Thermodynamics
- EAPS 42200 - Atmospheric Dynamics I
- EAPS 43200 - Synoptic Laboratory II
- CS 17700 - Programming With Multimedia Objects
- COM 21700 - Science Writing And Presentation *

14 Credits

Spring 3rd Year

- EAPS 42300 - Atmospheric Dynamics II
- EAPS 43300 - Synoptic Lab III
- EAPS 53200 - Atmospheric Physics I
- Statistics Selective (EAPS 31000 recommended) - Credit Hours: 3.00 *
- General Education I Selective - Credit Hours: 3.00 *
- Free Elective - Credit Hours: 3.00

16 Credits

Fall 4th Year

- EAPS 50900 - Data Analysis Techniques In Earth And Atmospheric Sciences
- EAPS 49700 - Earth And Atmospheric Sciences Undergraduate Readings And Research Credit Hours: 3.00
- Great Issues Selective - Credit Hours: 3.00
- General Education II Selective - Credit Hours: 3.00 *
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- Multidisciplinary Experience Selective - Credit Hours: 3.00 *
- General Education III Selective - Credit Hours: 3.00 *
- Free Elective - Credit Hours:3.00
- Free Elective - Credit Hours:3.00
- Free Elective - Credit Hours:3.00

15 Credits

Notes

*Satisfies a University Core Requirement

2.0 Graduation GPA required for Bachelor of Science degree

2.0 average in EAPS major classes required to graduate

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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](#)

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (54 credits)

- EAPS 11800 - Introduction To Earth Sciences ♦
- EAPS 10900 - The Dynamic Earth ♦
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- EAPS 39100 - Topics In Earth And Atmospheric Sciences Biogeochemistry
- AGRY 33700 - Environmental Hydrology
- EAPS 30900 - Computer-Aided Analysis For Geosciences

- AGECE 20400 - Introduction To Resource Economics And Environmental Policy
or
- POL 22300 - Introduction To Environmental Policy

- ASM 54000 - Geographic Information System Application

- EEE 36000 - Environmental And Ecological Engineering Laboratory
- 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: 15.00 total [EAPS 44000 recommended]
- Environmental Selective with Lab^{^^} - Credit Hours: 8.00 total

Other Departmental/Program Course Requirements (54-63 credits)

- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*)
or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*)
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*satisfies Quantitative Reasoning*)
or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*satisfies Quantitative Reasoning*)
- CHM 11500 - General Chemistry ♦ (*satisfies Science*)
- CHM 11600 - General Chemistry ♦ (*satisfies Science*) (*satisfies Science and Teaming & Collaboration Experience*)

Physics Selective

- PHYS 22000 - General Physics ♦
or
- PHYS 23300 - Physics For Life Sciences I ♦ [if two semesters of Biology]
or
- PHYS 17200 - Modern Mechanics ♦

Computing Selective

(*satisfies Teaming & Collaboration Experience*)

- CS 17700 - Programming With Multimedia Objects (recommended)
or
- CS 15800 - C Programming
or
- CS 18000 - Problem Solving And Object-Oriented Programming

Statistics Selective

(*could satisfy Information Literacy*)

- EAPS 31000 - Introductory Statistics For Geosciences (spring) (recommended)
or
- STAT 30100 - Elementary Statistical Methods
or
- STAT 35000 - Introduction To Statistics (*satisfies Information Literacy Selective for core*)
or
- STAT 50300 - Statistical Methods For Biology (*satisfies Information Literacy Selective for core*)

or

- STAT 51100 - Statistical Methods
 - ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy*)
- or
- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy*)
 - COM 21700 - Science Writing And Presentation (*satisfies Oral Communication*)
 - Language I Selective (Credit Hours: 3.00 - 4.00)
 - Language II Selective (Credit Hours: 3.00 - 4.00)
 - Language III/Culture/Diversity Selective (Credit Hours: 3.00 - 4.00)
 - General Education I Selective (Credit Hours: 3.00) (*could satisfy Human Cultures: Behavioral/Social Science*)
 - General Education II Selective (Credit Hours: 3.00) (*could satisfy Human Cultures: Humanities*)
 - General Education III Selective (Credit Hours: 3.00) (*could satisfy Human Cultures: Behavioral/Social Science*)
 - Great Issues Selective (Credit Hours: 3.00) [EAPS 36400 (spring) or EAPS 32700 recommended]
 - Multidisciplinary Experience Selective (Credit Hours: 2.00 - 3.00) [BIOL 12100 (fall) recommended] (*satisfies Science, Technology, & Society*)

Free Electives (3-12 credits)

Selectives List

^Environmental Selectives

15.00 Credit Hours Total Required

- AGRY 12000 - Water And Food Security
 - AGRY 25500 - Soil Science
 - AGRY 38500 - Environmental Soil Chemistry
 - CE 54900 - Computational Watershed Hydrology
 - CE 55700 - Air Quality Management
 - CE 59700 - Civil Engineering Projects (Water Chemistry)
 - EAPS 22500 - Science Of The Atmosphere
 - EAPS 35300 - Earth Surface Processes
 - EAPS 44000 - Geochemistry Of Earth Elements
 - EAPS 51800 - Soil Biogeochemistry
 - EAPS 53500 - Atmospheric Observations And Measurements
 - EAPS 58400 - Hydrogeology
 - HSCI 55200 - Introduction To Aerosol Science
 - 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

^^Environmental Selectives with Lab

8.00 Credit Hours Total Required

- EAPS 24300 - Earth Materials I
- EAPS 24400 - Earth Materials II
- CHM 32100 - Analytical Chemistry I

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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 ♦*

- 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 *

15-17 Credits

Spring 1st Year

- MA 16200 - Plane Analytic Geometry And Calculus II ♦*
- or
- MA 16600 - Analytic Geometry And Calculus II ♦*

- EAPS 10900 - The Dynamic Earth ♦*
- CHM 11600 - General Chemistry ♦*
- Language I Selective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15 Credits

Fall 2nd Year

- General Education I Selective - Credit Hours: 3.00 *
- Multidisciplinary Experience Selective* BIOL 12100 Recommended - Credit Hours: 3.00
- Environmental Selective - Credit Hours: 3.00 ^
- Environmental Selective with Lab - Credit Hours: 3.00 ^^
- Language II Selective - Credit Hours: 3.00

15 Credits

Spring 2nd Year

- AGRY 33700 - Environmental Hydrology
- Physics Selective - Credit Hours: 3.00 ♦*
- Statistics Selective* EAPS 31000 recommended - Credit Hours: 3.00
- General Education II Selective - Credit Hours: 3.00 *
- Language III Selective/Culture/Diversity - Credit Hours: 3.00

16 Credits

Fall 3rd Year

- EEE 36000 - Environmental And Ecological Engineering Laboratory
- Environmental Selective^ EAPS 44000 recommended - Credit Hours: 3.00
- Environmental Selective^ EAPS 44000 - Geochemistry Of Earth Elements - Credit Hours: 3.00
- Computing Selective - CS 17700 recommended - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- EAPS 30900 - Computer-Aided Analysis For Geosciences
- Environmental Selective with Lab - Credit Hours: 3.00 ^^
- Free Elective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation *
- EAPS 49700 - Earth And Atmospheric Sciences Undergraduate Readings And Research
or
- EAPS 41900 - Internship In Environmental Geosciences

16 Credits

Fall 4th Year

- EAPS 39100 - Topics In Earth And Atmospheric Sciences Biogeochemistry
- ASM 54000 - Geographic Information System Application
- Environmental Selective - Credit Hours: 3.00 ^
- General Education III Selective - Credit Hours: 3.00 *
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- Free Elective - Credit Hours: 3.00
- EAPS 38500 - Principles Of Engineering Geology
- Great Issues Selective - EAPS 36400 or EAPS 32700 recommended
- EEE 35500 - Engineering Environmental Sustainability

- AGECE 20400 - Introduction To Resource Economics And Environmental Policy
or
- POL 22300 - Introduction To Environmental Policy

15 Credits

Notes

*Satisfies a University Core Requirement

^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

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 10900 - The Dynamic Earth ♦ (*satisfies Science*)
or
- EAPS 11200 - Earth Through Time ♦ (*satisfies Science*)
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- EAPS 24300 - Earth Materials I ♦ (*satisfies Science*)
- EAPS 35400 - Plate Tectonics
- EAPS 35300 - Earth Surface Processes
- EAPS 47400 - Sedimentation And Stratigraphy
- EAPS 35200 - Structural Geology
- EAPS 39000 - Geologic Field Methods
- EAPS 30900 - Computer-Aided Analysis For Geosciences
- 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
- EAPS 49000 - Field Geology In Rocky Mountains or EAPS 3XXXXX Geology Field Experience

Other Departmental/Program Course Requirements (58-67 credits)

- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*)
or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*)
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*satisfies Quantitative Reasoning*)
or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*satisfies Quantitative Reasoning*)
- CHM 11500 - General Chemistry ♦ (*satisfies Science*)
- CHM 11600 - General Chemistry ♦ (*satisfies Science*)
- PHYS 17200 - Modern Mechanics ♦ (*satisfies Science and Teambuilding & Collaboration Experience*)
or
- PHYS 22000 - General Physics ♦ (*satisfies Science and Teambuilding & Collaboration Experience*)
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science*)
or
- PHYS 22100 - General Physics (*satisfies Science*)
- ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy*)
or
- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy*)
- COM 21700 - Science Writing And Presentation (*satisfies Oral Communication*)
- Language I Selective - Credit Hours: 3.00-4.00
- Language II Selective - Credit Hours: 3.00-4.00
- Language III/Culture/Diversity Selective - Credit Hours: 3.00-4.00
- General Education I Selective - Credit Hours: 3.00 (*could satisfy Human Cultures: Behavioral/Social Science*)
- General Education II Selective - Credit Hours: 3.00 (*could satisfy Human Cultures: Humanities*)
- General Education III Selective - Credit Hours: 3.00 (*could satisfy Human Cultures: Behavioral/Social Science*)
- Great Issues Selective - Credit Hours: 3.00
- Multidisciplinary Experience Selective - Credit Hours: 3.00 (*satisfied by Science, Technology, & Society*)
- Computing Selective:** (*satisfies Teambuilding & Collaboration Experience*)
- CS 17700 - Programming With Multimedia Objects (recommended)
or
- CS 15800 - C Programming
or
- CS 18000 - Problem Solving And Object-Oriented Programming
- Statistics Selective:** (*could satisfy Information Literacy*)
- EAPS 31000 - Introductory Statistics For Geosciences (recommended)
or
- STAT 30100 - Elementary Statistical Methods
or
- STAT 35000 - Introduction To Statistics
or
- STAT 50300 - Statistical Methods For Biology
or
- STAT 51100 - Statistical Methods

Free Electives (5-14 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- EAPS 11800 - Introduction To Earth Sciences ♦
- CHM 11500 - General Chemistry ♦*
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦

- 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 *

15-17 Credits

Spring 1st Year

- EAPS 11200 - Earth Through Time ♦*
- or
- EAPS 10900 - The Dynamic Earth ♦*

- MA 16200 - Plane Analytic Geometry And Calculus II ♦*
- or
- MA 16600 - Analytic Geometry And Calculus II ♦*

- CHM 11600 - General Chemistry ♦*
- Language I Selective
- Free Elective - Credit Hours: 1.00

15-16 Credits

Fall 2nd Year

- PHYS 17200 - Modern Mechanics ♦*
- or
- PHYS 22000 - General Physics ♦*
- EAPS 24300 - Earth Materials I ♦*
- Language II Selective
- Science/Engineering Elective (Level 20000 to 59900)
- Free Elective - Credit Hours: 1.00

15 Credits

Spring 2nd Year

- PHYS 27200 - Electric And Magnetic Interactions *
- or
- PHYS 22100 - General Physics *
- EAPS 35400 - Plate Tectonics
- Science/Engineering Elective (Level 20000 to 59900)
- Language III/Culture/Diversity Selective
- Free Elective - Credit Hours: 2.00

15 Credits

Fall 3rd Year

- EAPS 35300 - Earth Surface Processes
- EAPS 47400 - Sedimentation And Stratigraphy
- Computing Selective (CS 17700 Recommended)
- General Education I Selective*

14 Credits

Spring 3rd Year

- EAPS 35200 - Structural Geology
- EAPS 39000 - Geologic Field Methods

- EAPS 30900 - Computer-Aided Analysis For Geosciences
- Statistics Selective* (EAPS 31000 Recommended)

12 Credits

Summer

- EAPS 49000 - Field Geology In Rocky Mountains or EAPS 3XXXX Geology Field Experience

6 Credits

Fall 4th Year

- EAPS Professional Elective (EAPS 30000:59900)
- Multidisciplinary Experience Selective*
- Great Issues Selective
- General Education II Selective*
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- COM 21700 - Science Writing And Presentation *
- EAPS Professional Elective (EAPS 30000:59900)*
- General Education III Selective*
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

13 Credits

Notes

*Satisfies a University Core Requirement

2.0 Graduation GPA required for Bachelor of Science degree

2.0 average in EAPS major classes required to graduate

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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.

Planetary Sciences Website

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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. Free 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 free 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 free 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
- Culture and Diversity
- 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 (40 credits)

- EAPS 10500 - The Planets ♦ (*satisfies Science*)
- EAPS 11700 - Introduction To Atmospheric Science ♦ (*satisfies Science*)
or
- EAPS 11800 - Introduction To Earth Sciences ♦
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- EAPS Elective (Credit Hours: 3.00; EAPS 10000:59900) (*could satisfy Science, Technology, & Society*)
- ASTR 36300 - The Solar System
- EAPS 55600 - Planetary Geology
- EAPS 39100 - Topics In Earth And Atmospheric Sciences Astrobiology
- EAPS 57700 - Remote Sensing Of The Planets
or
- EAPS 30900 - Computer-Aided Analysis For Geosciences
- AAE 45000 - Spacecraft Design
- Science/Engineering Elective (based on areas of interest; Credit Hours: 3.00)
- Science/Engineering Elective (based on areas of interest; Credit Hours: 3.00)
- Planetary Science Selective^ (Credit Hours: 9.00 total)

Other Departmental/Program Course Requirements (66-75 credits)

- MA 16100 - Plane Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*)
or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*)
- MA 16200 - Plane Analytic Geometry And Calculus II ♦ (*satisfies Quantitative Reasoning*)
or
- MA 16600 - Analytic Geometry And Calculus II ♦ (*satisfies Quantitative Reasoning*)
- MA 26100 - Multivariate Calculus ♦ (*satisfies Quantitative Reasoning*)
- MA 26200 - Linear Algebra And Differential Equations (*satisfies Quantitative Reasoning*)
- CHM 11500 - General Chemistry ♦ (*satisfies Science*)
- CHM 11600 - General Chemistry ♦ (*satisfies Science*)
- PHYS 17200 - Modern Mechanics ♦ (*satisfies Science and Teambuilding & Collaboration Experience*)
- PHYS 27200 - Electric And Magnetic Interactions (*satisfies Science*) (*satisfies Teambuilding & Collaboration Experience*)

Computing Selective

- CS 17700 - Programming With Multimedia Objects (recommended)
or
- CS 15800 - C Programming
or
- CS 18000 - Problem Solving And Object-Oriented Programming

Statistics Selective

(*could satisfy Information Literacy*)

- EAPS 31000 - Introductory Statistics For Geosciences
(spring) (recommended)
or
- STAT 30100 - Elementary Statistical Methods
or
- STAT 35000 - Introduction To Statistics
or
- STAT 50300 - Statistical Methods For Biology
or
- STAT 51100 - Statistical Methods

- ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy*)
or
- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy*)
- COM 21700 - Science Writing And Presentation (*satisfies Oral Communication*)
- Language I Selective (Credit Hours: 3.00 - 4.00)
- Language II Selective (Credit Hours: 3.00 - 4.00)
- Language III/Culture/Diversity Selective (Credit Hours: 3.00 - 4.00)
- General Education I Selective (Credit Hours: 3.00) (could satisfy Human Cultures: Behavioral/Social Science)
- General Education II Selective (Credit Hours: 3.00) (could satisfy Human Cultures: Humanities)
- General Education III Selective (Credit Hours: 3.00) (could satisfy Human Cultures: Behavioral/Social Science)
- Great Issues Selective (Credit Hours: 3.00)
- Multidisciplinary Experience Selective (Credit Hours: 3.00) (satisfied by Science, Technology & Society)

Free Electives (5-14 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

^Planetary Science Selectives (9 credits)

- EAPS 31900 - Exploring Earth Through Time
- EAPS 32000 - Physics Of Climate
- EAPS 35200 - Structural Geology
- EAPS 35300 - Earth Surface Processes
- EAPS 39000 - Geologic Field Methods
- EAPS 42000 - Global Change Modeling
- 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
or 3XXXX - Field Geology
- EAPS 30900 - Computer-Aided Analysis For Geosciences
- EAPS 57700 - Remote Sensing Of The Planets
(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
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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

Program Requirements

Fall 1st Year

- EAPS 11700 - Introduction To Atmospheric Science ♦*
- or
- EAPS 11800 - Introduction To Earth Sciences ♦
- EAPS 13700 - Freshman Seminar In Earth And Atmospheric Sciences ♦
- MA 16100 - Plane Analytic Geometry And Calculus I ♦*
- or
- MA 16500 - Analytic Geometry And Calculus I ♦*
- CHM 11500 - General Chemistry ♦*
- ENGL 10600 - First-Year Composition *
- or
- ENGL 10800 - Accelerated First-Year Composition *

15-17 Credits

Spring 1st Year

- EAPS 10500 - The Planets ♦*
- MA 16200 - Plane Analytic Geometry And Calculus II ♦*
- or

- MA 16600 - Analytic Geometry And Calculus II ♦*
- CHM 11600 - General Chemistry ♦*
- Language I Selective
- Free Elective (Credit Hours: 1.00)

15-16 Credits

Fall 2nd Year

- MA 26100 - Multivariate Calculus ♦*
- PHYS 17200 - Modern Mechanics ♦*
- General Education I Selective*
- Language II Selective

14 Credits

Spring 2nd Year

- EAPS Elective (10000:59900)
- MA 26200 - Linear Algebra And Differential Equations *
- PHYS 27200 - Electric And Magnetic Interactions *
- General Education II Selective*
- Language III/Culture/Diversity Selective

17 Credits

Fall 3rd Year

- Planetary Science Selective^
- ASTR 36300 - The Solar System
- EAPS 55600 - Planetary Geology
- Computing Selective (CS 17700 recommended)
- Free Elective (Credit Hours: 3.00)

16 Credits

Spring 3rd Year

- COM 21700 - Science Writing And Presentation *
- Planetary Science Selective^
- Great Issues Selective
- Statistics Selective* (EAPS 31000 recommended)
- Science/Engineering Elective

15 Credits

Fall 4th Year

- EAPS 39100 - Topics In Earth And Atmospheric Sciences Astrobiology
 - Planetary Science Elective[^]
 - Multidisciplinary Experience Selective*
 - General Education III Selective*
 - Free Elective (Credit Hours: 3.00)

15 Credits

Spring 4th Year

- AAE 45000 - Spacecraft Design
 - EAPS 57700 - Remote Sensing Of The Planets
- or
- EAPS 30900 - Computer-Aided Analysis For Geosciences
 - Science/Engineering Elective
 - Free Elective (Credit Hours 3.00)
 - Free Elective (Credit Hours: 1.00)

13 Credits

Notes

*Satisfies a University Core Requirement

[^]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. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, 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

17 Credits Required

Requirements for the Minor

Required Courses (7 credits)

- EAPS 11100 - Physical Geology
 - EAPS 22100 - Survey Of Atmospheric Science
- or
- EAPS 22500 - Science Of The Atmosphere
 - EAPS 23000 - Laboratory In Atmospheric Science

Additional EAPS Coursework (10 credits)

- EAPS 10000:59900 (Credit Hours: 3.00)
- EAPS 20000:59900 (Credit Hours: 7.00)

Note: no more than one course in this area can be at the 10000-level.

Note

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.

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.

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

Faculty

<http://www.math.purdue.edu/people/faculty/>

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

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (63-66 credits)

Required Major Courses (63-66 credits)

Average GPA in courses must be 2.50 [excluding Calculus I, II, III] AND B or higher in major courses excluding MGMT 20000 and MGMT 20100 AND 3.5 Average GPA in major courses mark with a •

- Calculus I Selective - MA 16100 or MA 16500 (satisfies UC Core Quantitative Reasoning) - Credit Hours: 4.00 - 5.00 ♦
- Calculus II Selective - MA 16200 or MA 16600 (satisfies UC Core Quantitative Reasoning) - Credit Hours: 4.00 - 5.00
- Calculus III Selective - MA 26100 or MA 27101 (satisfies UC Core Quantitative Reasoning) - Credit Hours: 4.00 - 5.00
- MA 35100 - Elementary Linear Algebra
- MA 37300 - Financial Mathematics (satisfies Multidisciplinary Experience) ♦

- MA 41600 - Probability ♦
- or
- STAT 41600 - Probability ♦

- STAT 47201 - Actuarial Models- Life Contingencies •
- STAT 41700 - Statistical Theory •
- STAT 47301 - Introduction To Arbitrage-Free Pricing Of Financial Derivatives
- MA 36600 - Ordinary Differential Equations
- STAT 47901 - Short Term Actuarial Models •
- STAT 51200 - Applied Regression Analysis
- STAT 42000 - Introduction To Time Series
- MGMT 20000 - Introductory Accounting

- MGMT 20100 - Management Accounting I
- MGMT 31000 - Financial Management
- or
- MGMT 30400 - Introduction To Financial Management
- MGMT 41100 - Investment Management
- ECON 25100 - Microeconomics (satisfies General Education Option)
- ECON 25200 - Macroeconomics

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/Program Course Requirements (27-50 credits)

- ENGL 10600 - First-Year Composition (satisfies UC Core Written Communication and UC Core Information Literacy)
- or
- ENGL 10800 - Accelerated First-Year Composition (satisfies UC Core Written Communication and UC Core Information Literacy)
- Language I Option* (Select courses COULD satisfy UC Core Human Cultures Humanities) - Credit Hours: 0.00 - 4.00
- Language II Option* (Select courses COULD satisfy UC Core Human Cultures Humanities) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (Select courses COULD satisfy UC Core Human Cultures Humanities) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy UC Core Oral Communication) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies UC Core Science) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies UC Core Science) - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses COULD satisfy UC Core Human Culture Behavioral/UC Core Social Science) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy UC Core Human Culture Behavioral/UC Core Social Science) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience* (Select courses COULD satisfy UC Core Science, Technology, and Society) - met within major

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

Electives (4-30 credits)

University Core Requirements

- Human Cultures Humanities

- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00 ♦
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00

- ENGL 10600 - First-Year Composition
- or
- ENGL 10800 - Accelerated First-Year Composition

- Free Elective - Credit Hours: 2.00
- or
- MA 17000 - Introduction To Actuarial Science
- or
- STAT 17000 - Introduction To Actuarial Science

15-18 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- MA 37300 - Financial Mathematics ♦
- Computing Option (CS 17700 & meets Teambuilding & Collaboration) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 1.00

14-17 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00

- MGMT 20000 - Introductory Accounting
- ECON 25100 - Microeconomics
- STAT 35000 - Introduction To Statistics
- Language III/Culture/Diversity Option - Credit Hours: 3.00

16-17 Credits

Spring 2nd Year

- MA 41600 - Probability ♦
- or
- STAT 41600 - Probability ♦

- MA 35100 - Elementary Linear Algebra
- MGMT 20100 - Management Accounting I
- ECON 25200 - Macroeconomics
- COM 21700 - Science Writing And Presentation - (Technical Writing Option and Technical Presenting Option) - Credit Hours: 3.00 - 6.00

15-18 Credits

Fall 3rd Year

- STAT 47201 - Actuarial Models- Life Contingencies •
- STAT 41700 - Statistical Theory •
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00 - 4.00

- MGMT 31000 - Financial Management
- or
- MGMT 30400 - Introduction To Financial Management

15-16 Credits

Spring 3rd Year

- STAT 47301 - Introduction To Arbitrage-Free Pricing Of Financial Derivatives •
- Laboratory Science II Option - Credit Hours: 3.00 -4.00
- General Education I Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00
- Free Elective (recommended - STAT 47500 - Life Contingencies II) Credit Hours: 2.00

16-17 Credits

Fall 4th Year

- MA 36600 - Ordinary Differential Equations
- STAT 51200 - Applied Regression Analysis
- MGMT 41100 - Investment Management
- Free Elective (UC Core Science, Technology & Society) - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00 - 3.00

15-16 Credits

Spring 4th Year

- STAT 42000 - Introduction To Time Series
- Great Issue Option - Credit Hours: 3.00
- General Education II Option - Credit Hours: 3.00
- STAT 47901 - Short Term Actuarial Models •
- Free Elective - Credit Hours: 2.00

15 Credits

Notes

Students must earn a 2.5 average GPA among required MA/STAT/MGMT/ECON courses excluding Calculus I, II, III, and STAT 35000 AND A or B in major courses excluding MGMT 20000 and 20100 AND 3.5 Average GPA in major courses marked with a • and pass two SOA exams.

3.3 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (57-60 credits)

Required Major Courses (57-60 credits)

Average GPA in courses must be 2.50 excluding Calculus I, II, and III

- Calculus I Selective - MA 16100 or MA 16500 (satisfies UC Core Quantitative Reasoning) - Credit Hours: 4.00 - 5.00 ♦
- Calculus II Selective - MA 16200 or MA 16600 (satisfies UC Core Quantitative Reasoning) - Credit Hours: 4.00 - 5.00
- Calculus III Selective - MA 26100 or MA 27101 (satisfies UC Core Quantitative Reasoning) - Credit Hours: 4.00 - 5.00
- MA 35100 - Elementary Linear Algebra
- MA 37300 - Financial Mathematics (satisfies Science Core Multidisciplinary Experience) ♦

- MA 41600 - Probability ♦
- or
- STAT 41600 - Probability ♦

- STAT 47201 - Actuarial Models- Life Contingencies
- STAT 41700 - Statistical Theory
- STAT 47301 - Introduction To Arbitrage-Free Pricing Of Financial Derivatives
- MA 36600 - Ordinary Differential Equations
- STAT 51200 - Applied Regression Analysis
- STAT 47901 - Short Term Actuarial Models
- STAT 42000 - Introduction To Time Series
- MGMT 20000 - Introductory Accounting
- MGMT 20100 - Management Accounting I

- MGMT 31000 - Financial Management
- or
- MGMT 30400 - Introduction To Financial Management

- ECON 25100 - Microeconomics (satisfies Science Core of General Education)
- ECON 25200 - Macroeconomics

Other Departmental/Program Course Requirements (27-50 credits)

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

- ENGL 10600 - First-Year Composition (satisfies UC Core Written Communication and UC Core Information Literacy)
- or
- ENGL 10800 - Accelerated First-Year Composition (satisfies UC Core Written Communication and UC Core Information Literacy)

- Language I Option * (Select courses COULD satisfy UC Core Human Cultures Humanities) - Credit Hours: 0.00 - 4.00
- Language II Option * (Select courses COULD satisfy UC Core Human Cultures Humanities) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option (Select courses COULD satisfy UC Core Human Cultures Humanities) - Credit Hours: 0.00 - 4.00
- Technical Writing Option (Select courses COULD satisfy UC Core Oral Communication) - Credit Hours: 3.00 - 6.00
- Technical Presenting Option (Select courses COULD satisfy UC Core Oral Communication) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies UC Core Science) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies UC Core Science) - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses COULD satisfy UC Core Human Culture Behavioral/Social Science) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy UC Core Human Culture Behavioral/Social Science) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration * - Credit Hours: 0.00 - 4.00
- Great Issues in Science- Credit Hours: 3.00

Electives (10-36 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00
 - Language I Option - Credit Hours: 3.00 - 4.00
 - Free Elective - Credit Hours: 2.00
 - Free Elective - Credit Hours: 3.00
 - ENGL 10600 - First-Year Composition
- or

- ENGL 10800 - Accelerated First-Year Composition
- MA 17000 - Introduction To Actuarial Science
- or
- STAT 17000 - Introduction To Actuarial Science

15-18 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- MA 37300 - Financial Mathematics ♦
- Computing (rec. CS 17700 & meets Teambuilding and Collaboration) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Teambuilding & Collaboration - Credit Hours: 0.00
- Free Elective - Credit Hours: 1.00

14-17 Credits

Fall 2nd Year

- Calculus III Selective - Credit Hours: 4.00 - 5.00
- MGMT 20000 - Introductory Accounting
- ECON 25100 - Microeconomics
- STAT 35000 - Introduction To Statistics
- Language Selective III - Credit Hours: 3.00 - 4.00

16-18 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra
- MA 41600 - Probability ♦
- or
- STAT 41600 - Probability ♦
- MGMT 20100 - Management Accounting I
- ECON 25200 - Macroeconomics
- Technical Writing Option and Technical Presenting Option (COM 21700) - Credit Hours: 3.00 - 6.00

15-18 Credits

Fall 3rd Year

- STAT 47201 - Actuarial Models- Life Contingencies
- STAT 41700 - Statistical Theory

- MGMT 31000 - Financial Management
- or
- MGMT 30400 - Introduction To Financial Management

- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 2.00

15 Credits

Spring 3rd Year

- STAT 47301 - Introduction To Arbitrage-Free Pricing Of Financial Derivatives
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- General Education I Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective (recommended - STAT 47500 - Life Contingencies II) Credit Hours: 2.00

16 Credits

Fall 4th Year

- MA 36600 - Ordinary Differential Equations
 - STAT 51200 - Applied Regression Analysis
- or
- Free Elective - Credit Hours: 3.00
- or
- MGMT 41100 - Investment Management
- Free Elective/UC Core Science, Technology & Society- Credit Hours: 3.00
 - Free Elective - Credit Hours: 3.00

15-16 Credits

Spring 4th Year

- STAT 42000 - Introduction To Time Series
- Great Issue Option - Credit Hours: 3.00
- General Education II Option - Credit Hours: 3.00
- STAT 47901 - Short Term Actuarial Models
- Free Elective - Credit Hours: 2.00

15 Credits

Notes

Students must earn a 2.5 average GPA among required MA/STAT/MGMT/ECON courses excluding Calculus I, II, III, and STAT 35000.

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (73-102 credits)

Required Major Courses (43-46 credits)

Average GPA in courses must be 2.00 excluding Calculus I, II, and III

- MA 35100 - Elementary Linear Algebra ♦
- MA 36600 - Ordinary Differential Equations

- MA 34100 - Foundations Of Analysis
- or
- MA 44000 - Real Analysis Honors

- MA 35300 - Linear Algebra II With Applications

- CS 31400 - Numerical Methods
- or
- MA 51400 - Numerical Analysis

- MA 45300 - Elements Of Algebra I
- or
- MA 45000 - Algebra Honors

- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- or
- MA 30400 - Differential Equations And Analysis Of Nonlinear Systems For Engineering And The Sciences

Calculus I Selective - Select from (4-5 credits)

(satisfies UC Core Quantitative Reasoning)

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

Calculus II Selective - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Calculus III Selective - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 26100 - Multivariate Calculus
- MA 27101 - Honors Multivariate Calculus

Advanced Calculus Selective (3 credits)

- MA 36200 - Topics In Vector Calculus
- or
- MA 44200 - Multivariate Analysis I Honors

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 42100 - Linear Programming And Optimization Techniques
- or
- MA 42500 - Elements Of Complex Analysis
- or
- MA 42800 - Introduction To Fourier Analysis

Other Departmental/Program Course Requirements (30-56 credits)

- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy for core) or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)

- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
- Multidisciplinary Experience (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00
- Great Issues Option - Credit Hours: 3.00

Electives (18-47 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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

- Free Elective - MA 10800 - Mathematics As A Profession And A Discipline
- Calculus I Option - Credit Hours: 4.00 - 5.00 ♦
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- Computing Option (rec. CS 17700 & meets Teambuilding and Collaboration Experiences) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 30100 - An Introduction To Proof Through Real Analysis
- Free Elective - Credit Hours: 2.00

15-18 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra ♦
- STAT 35000 - Introduction To Statistics
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- COM 21700 - Science Writing And Presentation Recommended for Technical Writing Option & Technical Presenting Option - Credit Hours: 3.00 - 6.00
- Free Elective - Credit Hours: 0.00 - 3.00

15-16 Credits

Fall 3rd Year

- MA 36600 - Ordinary Differential Equations
- MA 34100 - Foundations Of Analysis
- or
- MA 44000 - Real Analysis Honors
- General Education I Option - Credit Hours: 3.00
- Free Elective/Science, Technology & Society Selective Course - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15 Credits

Spring 3rd Year

- MA 35300 - Linear Algebra II With Applications
- Advance Calculus Selective - Credit Hours: 3.00
- CS 31400 - Numerical Methods
- or
- MA 51400 - Numerical Analysis
- General Education II Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- MA 45300 - Elements Of Algebra I
- or
- MA 45000 - Algebra Honors
-
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- or
- MA 30400 - Differential Equations And Analysis Of Nonlinear Systems For Engineering And The Sciences
-
- Multidisciplinary Experience - Credit Hours: 0.00 - 3.00
 - General Education III Option - Credit Hours: 3.00
 - Free Elective - Credit Hours: 3.00 - 6.00

15-18 Credits

Spring 4th Year

- Applied Math Selective - Credit Hours: 3.00
- Math/Statistics Elective - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Note

Student should earn minimum of a B- or better in Critical Courses - see advisor for further details.

Students must earn a 2.0 average in MATH/STAT/CS courses required for major.

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (98-115 credits)

Required Major Courses (44-47 credits)

Average GPA in courses below [higher of grade between STAT 35000 and MA Selective is used] must be 2.50

- MA 35100 - Elementary Linear Algebra
- CS 17700 - Programming With Multimedia Objects (CS 17700 satisfies Computing Requirement and is the recommended course)
- or
- CS 15800 - C Programming
- or
- CS 15900 - Programming Applications For Engineers
- or
- CS 18000 - Problem Solving And Object-Oriented Programming
- MA 46000 - Geometry
- MA 37500 - Introduction To Discrete Mathematics

- STAT 31100 - Introductory Probability

- MA 30100 - An Introduction To Proof Through Real Analysis
- or
- MA 34100 - Foundations Of Analysis
- STAT 35000 - Introduction To Statistics (satisfies Statistics Requirement)
- MA 36600 - Ordinary Differential Equations

- MA 45300 - Elements Of Algebra I
- or

- MA 45000 - Algebra Honors

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 26100 - Multivariate Calculus
- MA 27101 - Honors Multivariate Calculus

MA Selective (3 credits)

MA Elective must be 300 level or higher (CANNOT be MA 37300, MA 30300, MA 30400). You must apply and be accepted for MA 48400 - see advisor for more details)

- MA 35300 - Linear Algebra II With Applications
- MA 36200 - Topics In Vector Calculus
- MA 38500 - Introduction To Logic
- MA 42100 - Linear Programming And Optimization Techniques
- MA 42500 - Elements Of Complex Analysis
- MA 42800 - Introduction To Fourier Analysis
- MA 45400 - Galois Theory
- MA 48400 - Seminar On Teaching College Algebra And Trigonometry

Educational Program Course Requirements (33 credits)

Average GPA in courses must be 3.00 - no grade lower than C-

- EDCI 27000 - Introduction To Educational Technology And Computing
- EDCI 20500 - Exploring Teaching As A Career
- EDCI 28500 - Multiculturalism And Education (satisfies Behavior/Social Science for core) (satisfies Language III)
- EDPS 23500 - Learning And Motivation (satisfies Behavior/Social Science for core) (satisfies General Education Requirement)
- EDPS 26500 - The Inclusive Classroom (satisfies Behavior/Social Science for core)
- EDST 20010 - Educational Policies And Laws
- EDPS 32700 - Assessment Literacy
- EDPS 49100 Secondary Create & Mgt Environ (1 credit)

- EDCI 42500 - Teaching Of Mathematics In Secondary Schools (satisfies Multidisciplinary Requirement)
- EDCI 42600 - Teaching Mathematics In The Middle And Junior High School
- EDCI 49800 - Supervised Teaching (satisfies Teamwork Experience requirement)

Other Departmental/Program Course Requirements (21-35 credits)

- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy for core)
 - or
 - ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)
 - Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
 - Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
 - Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communications for core) - Credit Hours: 3.00 - 6.00
 - Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
 - Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
 - 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
- *Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (5-22 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00 ♦

- ENGL 10600 - First-Year Composition
- or
- ENGL 10800 - Accelerated First-Year Composition
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 10800 - Mathematics As A Profession And A Discipline
- EDCI 20500 - Exploring Teaching As A Career
- Free Elective - Credit Hours: 1.00

15-18 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- CS 17700 - Programming With Multimedia Objects
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 1.00
- EDCI 28500 - Multiculturalism And Education

15-17 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00
- MA 46000 - Geometry
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- EDCI 27000 - Introduction To Educational Technology And Computing
- Free Elective - Credit Hours: 3.00

16-18 Credits

Spring 2nd Year

- MA 37500 - Introduction To Discrete Mathematics
- STAT 31100 - Introductory Probability
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- Technical Writing Option and Technical Presenting Option COM 21700 - Science Writing And Presentation - Credit Hours: 3.00 - 6.00
- Free Elective - Credit Hours: 0.00 - 3.00

15-16 Credits

Fall 3rd Year

- MA 30100 - An Introduction To Proof Through Real Analysis

- MA 35100 - Elementary Linear Algebra
- EDPS 23500 - Learning And Motivation
- EDPS 26500 - The Inclusive Classroom
- EDST 20010 - Educational Policies And Laws
- Free Elective - Credit Hours: 3.00

16 Credits

Spring 3rd Year

- STAT 35000 - Introduction To Statistics
- MA 36600 - Ordinary Differential Equations
- Great Issues Option - Credit Hours: 3.00
- RECOMMENDED
- EDPS 32700 - Assessment Literacy (1 cr) and
- EDPS 49100 Secondary Create & Mgt Environ (1 credit)
- OR - take the following for 2 credits
- EDPS 32700 - Assessment Literacy
- General Education I Option - Credit Hours: 3.00

15 Credits

Fall 4th Year

- MA 45300 - Elements Of Algebra I
- or
- MA 45000 - Algebra Honors
- MA Selective - Credit Hours: 3.00
- General Education II Option - Credit Hours: 3.00
- EDCI 42500 - Teaching Of Mathematics In Secondary Schools
- Free Elective (Science, Technology & Society Selective Course) - Credit Hours: 4.00

15 Credits

Spring 4th Year

- EDCI 42600 - Teaching Mathematics In The Middle And Junior High School
- EDCI 49800 - Supervised Teaching - Credit Hours: 10.00

12 Credits

Notes

Student should earn minimum of a B- see advisor for further details.

Students must earn a 2.5 average in MATH/STAT/CS courses required for major.

2.5 Graduation GPA required for Bachelor of Science degree.

*For Licensing - Students must pass GATE C

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (70-99 credits)

Required Major Courses (40-43 credits)

Average GPA in courses must be 3.50 or higher excluding Calculus I, II and III. Average GPA in MA 44000, MA 44200, and MA 45000 must be 3.50 or higher.

- MA 35100 - Elementary Linear Algebra ♦
- MA 36600 - Ordinary Differential Equations

- MA 34100 - Foundations Of Analysis

or

- MA 44000 - Real Analysis Honors

- MA 35300 - Linear Algebra II With Applications
- MA 45000 - Algebra Honors

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 26100 - Multivariate Calculus
- MA 27101 - Honors Multivariate Calculus

Advanced Calculus Selective (3 credits)

- MA 36200 - Topics In Vector Calculus
- or
- MA 44200 - Multivariate Analysis I Honors

MA Selective (9 credits)

- MA Selective - 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) - Credit Hours: 9.00

Algebra

- MA 42100 - Linear Programming And Optimization Techniques
- MA 45400 - Galois Theory

Analysis

- MA 42500 - Elements Of Complex Analysis
- MA 42800 - Introduction To Fourier Analysis
- MA 44000 - Real Analysis Honors
- MA 44200 - Multivariate Analysis I Honors

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
- MA 51900 - Introduction To Probability

Approved for MATH/MAED dual majors ONLY

- MA 48400 - Seminar On Teaching College Algebra And Trigonometry

Approved for MATH/PHYS dual majors ONLY

- PHYS 60000 - Methods Of Theoretical Physics I
- PHYS 60100 - Methods Of Theoretical Physics II

Other Departmental/Program Course Requirements (30-56 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
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)

- Language I Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00 *
- Language II Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00 *
- Language III/Culture/Diversity Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00 *
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Options - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00 - 4.00 *
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00 *

Electives (21-50 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00 ♦
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 10800 - Mathematics As A Profession And A Discipline
- Free Elective - Credit Hours: 4.00

15-18 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- Computing Option (CS 17700 Meets Teambuilding and Collaboration Experience) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 2.00
- Free Elective - Credit Hours: 3.00

15-18 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 30100 - An Introduction To Proof Through Real Analysis
- Free Elective - Credit Hours: 2.00

15-18 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra ♦
- STAT 35000 - Introduction To Statistics
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- COM 21700 - Science Writing And Presentation Technical Writing Option and Technical Presenting Option - Credit Hours: 3.00 - 6.00
- Free Elective - Credit Hours: 0.00 - 3.00

15-16 Credits

Fall 3rd Year

- MA 36600 - Ordinary Differential Equations

- MA 34100 - Foundations Of Analysis

or

- MA 44000 - Real Analysis Honors

- General Education I Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15 Credits

Spring 3rd Year

- MA 35300 - Linear Algebra II With Applications
- Advance Calculus Selective - Credit Hours: 3.00
- General Education II Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- MA 45000 - Algebra Honors
- MA Selective - MA 4400 if not taken in place of MA 34100 MA 44000 - Real Analysis Honors
- Multidisciplinary Experience - Credit Hours: 0.00 - 4.00
- General Education III Option - Credit Hours: 3.00
- Free Elective (Science, Technology & Society Selective Course) - Credit Hours: 3.00 - 6.00

15-18 Credits

Spring 4th Year

- Math Selective - MA 44200 if not take as Advanced Calculus Selective MA 44200 - Multivariate Analysis I Honors
- Math Selective - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Notes

Student should earn minimum of a B- or better in Critical Courses, see advisor for further details.

Average GPA in courses must be 3.50 or higher excluding Calculus III Option AND 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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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, 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

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (70-99 credits)

Required Major Courses (40-43 credits)

Average GPA in courses must be 2.00 excluding Calculus I, II and III.

- MA 35100 - Elementary Linear Algebra ♦

- MA 36600 - Ordinary Differential Equations
- MA 34100 - Foundations Of Analysis
or
- MA 44000 - Real Analysis Honors
- MA 35300 - Linear Algebra II With Applications
- MA 45300 - Elements Of Algebra I
or
- MA 45000 - Algebra Honors
- MA Selective - Credit Hours: 9.00

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 26100 - Multivariate Calculus
- MA 27101 - Honors Multivariate Calculus

Advanced Calculus Selective

- MA 36200 - Topics In Vector Calculus
or
- MA 44200 - Multivariate Analysis I Honors

Math Selective

No more than two courses in any one category.

Algebra

- MA 42100 - Linear Programming And Optimization Techniques
- MA 45400 - Galois Theory

Analysis

- MA 42500 - Elements Of Complex Analysis
- MA 42800 - Introduction To Fourier Analysis
- MA 44000 - Real Analysis Honors
- MA 44200 - Multivariate Analysis I Honors

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

- MA 48400 - Seminar On Teaching College Algebra And Trigonometry

Allowed for MATH/PHYS dual majors ONLY

- PHYS 60000 - Methods Of Theoretical Physics I
- PHYS 60100 - Methods Of Theoretical Physics II

Other Departmental/Program Course Requirements (30-56 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
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)
- Language I Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00 *
- Language II Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00 *
- Language III/Culture/Diversity Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00 *
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00 - 4.00 *
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00 *

Electives (21-50 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00 ♦
- ENGL 10600 - First-Year Composition
- or
- ENGL 10800 - Accelerated First-Year Composition
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 10800 - Mathematics As A Profession And A Discipline
- Free Elective - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- Computing Option (rec. CS 17700 & meets Teambuilding and Collaboration Experience) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 2.00
- Free Elective - Credit Hours: 3.00

15-18 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 30100 - An Introduction To Proof Through Real Analysis
- Free Elective - Credit Hours: 2.00

15-18 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra ♦
- STAT 35000 - Introduction To Statistics
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- COM 21700 - Science Writing And Presentation Technical Writing Option and Technical Presenting Option - Credit Hours: 3.00 - 6.00
- Free Elective - Credit Hours: 0.00 - 3.00

15-16 Credits

Fall 3rd Year

- MA 36600 - Ordinary Differential Equations

- MA 34100 - Foundations Of Analysis

or

- MA 44000 - Real Analysis Honors

- General Education I Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15 Credits

Spring 3rd Year

- MA 35300 - Linear Algebra II With Applications
- Advanced Calculus Selective - Credit Hours: 3.00
- General Education II Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- MA 45300 - Elements Of Algebra I

or

- MA 45000 - Algebra Honors

- MA Selective - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 3.00
- General Education III Option - Credit Hours: 3.00
- Free Elective (Science, Technology & Society Selective Course) - Credit Hours: 3.00 - 6.00

15-18 Credits

Spring 4th Year

- Math Selective - Credit Hours: 3.00
- Math Selective - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Notes

Student should earn minimum of a B- in critical courses; see advisor for further details.

Students must earn a 2.0 average in MATH/STAT/CS courses required for major (excluding Calculus I, II, III)

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (75-104 credits)

Required Major Courses (48-51 credits)

Average GPA in courses must be 2.00 excluding Calculus I, II and III

- MGMT 20000 - Introductory Accounting (satisfies General Education Selective)

- MA 35100 - Elementary Linear Algebra ♦
- MA 41600 - Probability
- or
- STAT 41600 - Probability
- or
- STAT 51600 - Basic Probability And Applications
- MA 34100 - Foundations Of Analysis
- or
- MA 44000 - Real Analysis Honors
- MA 35300 - Linear Algebra II With Applications
- MA 36600 - Ordinary Differential Equations
- MA 45300 - Elements Of Algebra I
- or
- MA 45000 - Algebra Honors
- STAT 51200 - Applied Regression Analysis

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 26100 - Multivariate Calculus
- MA 27101 - Honors Multivariate Calculus

Option Course Selective I (6 credits)

- MA 37500 - Introduction To Discrete Mathematics
- or
- MA 42100 - Linear Programming And Optimization Techniques
- or
- CS 31400 - Numerical Methods
- or

- STAT 41700 - Statistical Theory
- or
- STAT 51700 - Statistical Inference

Option Course Selective II (6 credits)

- MA 37300 - Financial Mathematics
- or
- MGMT 30400 - Introduction To Financial Management
- or
- MGMT 31000 - Financial Management
- or
- MGMT 41100 - Investment Management
- or
- MGMT 54400 - Database Management Systems
- or
- MGMT 32300 - Principles Of Marketing

Other Departmental/Program Course Requirements (27-53 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
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)

- Language I Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00 *
- Language II Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00 *
- Language III/Culture/Diversity Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00 *
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00 - 4.00 *
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00 *

Electives (16-45 credits)

University Core Requirements

- Human Cultures Humanities

- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Additional Degree Requirements

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00 ♦
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 10800 - Mathematics As A Profession And A Discipline
- Free Elective - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- Computing Option (rec. CS 17700 will also meet Teambuilding & Collaboration) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00
- MGMT 20000 - Introductory Accounting
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00

- Free Elective MA 30100 - An Introduction To Proof Through Real Analysis
- Free Elective - Credit Hours: 2.00

15-17 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra ♦
- Option Course Selective I - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- COM 21700 - Science Writing And Presentation Technical Writing Option and Technical Presenting Option - Credit Hours: 3.00 - 6.00
- Free Elective - Credit Hours: 0.00 - 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 - Real Analysis Honors

- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective (Science, Technology & Society Selective Course) - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- MA 35300 - Linear Algebra II With Applications
- Option Course Selective I - Credit Hours: 3.00
- General Education I Option - Credit Hours: 3.00
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- MA 45300 - Elements Of Algebra I

or

- MA 45000 - Algebra Honors
- MA 36600 - Ordinary Differential Equations
- Option Course Selective II - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 0.00 - 4.00
- General Education II Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 0.00 - 2.00

15-18 Credits

Spring 4th Year

- Option Course Selective II - Credit Hours: 3.00
- STAT 51200 - Applied Regression Analysis
- Great Issues Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Notes

Student should earn minimum of a B- or better in Critical Courses, see advisor for further details.

Students must earn a 2.0 average in MATH/STAT/MGMT courses required for major excluding Calculus III Option and STAT 35000.

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (73-102 credits)

Required Major Courses (43-46 credits)

Average GPA in courses must be 2.00 excluding Calculus I, II, and III

- MA 35100 - Elementary Linear Algebra ♦
- MA 37500 - Introduction To Discrete Mathematics
- MA 36600 - Ordinary Differential Equations
- CS 24000 - Programming In C
- CS 25100 - Data Structures And Algorithms

- CS 31400 - Numerical Methods
- or
- MA 51400 - Numerical Analysis

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II

or

- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 26100 - Multivariate Calculus

or

- MA 27101 - Honors Multivariate Calculus

MACS Math Selective (6 credits)

- MA 35300 - Linear Algebra II With Applications

or

- MA 38500 - Introduction To Logic

or

- MA 45300 - Elements Of Algebra I

or

- MA 45000 - Algebra Honors

CS Selective - (3 credits)

- CS 38100 - Introduction To The Analysis Of Algorithms

or

- CS 33400 - Fundamentals Of Computer Graphics

or

- CS 48300 - Introduction To The Theory Of Computation

or

- CS 51400 - Numerical Analysis

or

- CS 51500 - Numerical Linear Algebra

or

- CS 52000 - Computational Methods In Optimization

MA/STAT Selective (3 credits)

- MA 34100 - Foundations Of Analysis

or

- MA 36200 - Topics In Vector Calculus

or

- MA 41600 - Probability

or

- STAT 41600 - Probability

or

- MA 42100 - Linear Programming And Optimization Techniques

or

- MA 42500 - Elements Of Complex Analysis

or

- STAT 42000 - Introduction To Time Series

or

- MA 45300 - Elements Of Algebra I

or

- MA 45000 - Algebra Honors

or

- MA 44000 - Real Analysis Honors

or

- MA 44200 - Multivariate Analysis I Honors

or

- MA 51800 - Advanced Discrete Mathematics

Other Departmental/Program Course Requirements (30-56 credits)

- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy for core)

or

- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)

- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- STAT 35000 - Introduction To Statistics
- Computing Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience* (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00

Electives (18-47 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication

- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00 ♦
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 10800 - Mathematics As A Profession And A Discipline
- Free Elective CS 17700 - Programming With Multimedia Objects

15-18 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- CS 18000 - Problem Solving And Object-Oriented Programming
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15-17 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00
- STAT 35000 - Introduction To Statistics
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- General Education I Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-17 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra ♦
- MA 37500 - Introduction To Discrete Mathematics (used as CS 18200 pre-requisite)

- Technical Writing Option and Technical Presenting Option - Credit Hours: 3.00 - 6.00 COM 21700 - Science Writing And Presentation
- General Education II Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 0.00 - 3.00

15 Credits

Fall 3rd Year

- MA 36600 - Ordinary Differential Equations
- CS 24000 - Programming In C
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-16 Credits

Spring 3rd Year

- MACS Math Selective I - Credit Hours: 3.00
- CS 25100 - Data Structures And Algorithms
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 6.00

15-16 Credits

Fall 4th Year

- CS 31400 - Numerical Methods
- or
- MA 51400 - Numerical Analysis
- MACS Math Selective II - Credit Hours: 3.00
- General Education III Option - Credit Hours: 3.00
- Free Elective (Science, Technology & Society Selective Course) - Credit Hours: 6.00

15 Credits

Spring 4th Year

- MA/STAT Selective - Credit Hours: 3.00
- CS Selective - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 0.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00 - 6.00

15-18 Credits

Notes

Student should earn minimum of a B- or better in Critical Courses, see advisor for further details.

Students must earn a 2.0 average in MATH/STAT/CS courses required for major.

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, 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.

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Mathematics/Operations Research, 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

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (73-102 credits)

Required Major Courses (43-46 credits)

Average GPA in courses must be 2.00 excluding Calculus I, II, and III

- MA 35100 - Elementary Linear Algebra ♦
- MA 36600 - Ordinary Differential Equations
- MA 35300 - Linear Algebra II With Applications

- CS 31400 - Numerical Methods
- or
- MA 51400 - Numerical Analysis

- MA 45300 - Elements Of Algebra I
- or
- MA 45000 - Algebra Honors

- STAT 41700 - Statistical Theory
- or
- STAT 51700 - Statistical Inference

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus III Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 26100 - Multivariate Calculus
- or
- MA 27101 - Honors Multivariate Calculus

MA, CS, STAT Selective (3 credits)

- CS 52000 - Computational Methods In Optimization
- or

- MA 34100 - Foundations Of Analysis
- or
- MA 44000 - Real Analysis Honors
- or
- MA 52300 - Introduction To Partial Differential Equations
- or
- MA 54300 - Ordinary Differential Equations And Dynamical Systems
- or
- STAT 42000 - Introduction To Time Series

Advanced Calculus Selective (3 credits)

- MA 36200 - Topics In Vector Calculus
- or
- MA 44200 - Multivariate Analysis I Honors

Probability/Discrete Mathematics Selective (3 credits)

- MA 41600 - Probability
- or
- STAT 41600 - Probability
- or
- STAT 51600 - Basic Probability And Applications
- or
- MA 37500 - Introduction To Discrete Mathematics

MAOR Math Selective (3 credits)

- MA 42100 - Linear Programming And Optimization Techniques
- or
- IE 33500 - Operations Research - Optimization

Other Departmental/Program Course Requirements (30-56 credits)

- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy for core)
- or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)
- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00

- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
 - STAT 35000 - Introduction To Statistics
 - Computing Option - Credit Hours: 3.00 - 4.00
 - Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
 - Great Issues Option - Credit Hours: 3.00
 - Multidisciplinary Experience* (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00
- *Requirement may be met with a zero credit experiential learning option. See your advisor for more information

Electives (18-47 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- Calculus I Option ♦ - Credit Hours: 4.00 - 5.00
- ENGL 10600 - First-Year Composition
- or
- ENGL 10800 - Accelerated First-Year Composition
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 10800 - Mathematics As A Profession And A Discipline
- Free Elective - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- Computing Option (CS 17700 Meets Teambuilding and Collaboration Experience) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00
- STAT 35000 - Introduction To Statistics
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 30100 - An Introduction To Proof Through Real Analysis
- Free Elective - Credit Hours: 2.00

15-17 Credits

Spring 2nd Year

- Probability/Discrete Mathematics Selective - Credit Hours: 3.00
- MA 35100 - Elementary Linear Algebra ♦
- General Education I Option - Credit Hours: 3.00
- Technical Writing Option and Technical Presenting Option COM 21700 - Credit Hours: 3.00 - 6.00
- Free Elective - Credit Hours: 0.00 - 3.00

15 Credits

Fall 3rd Year

- STAT 41700 - Statistical Theory
- or
- STAT 51700 - Statistical Inference
- MA, CS, STAT Selective - Credit Hours: 3.00
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- Advance Calculus Selective - Credit Hours: 3.00
- CS 31400 - Numerical Methods
- or

- MA 51400 - Numerical Analysis
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- MA 35300 - Linear Algebra II With Applications
- MA 45300 - Elements Of Algebra I
or
- MA 45000 - Algebra Honors
- General Education II Option - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 0.00 - 4.00
- Free Elective (Science, Technology & Society Selective Course) - Credit Hours: 3.00 - 6.00

15-17 Credits

Spring 4th Year

- MAOR Math Selective - Credit Hours: 3.00
- MA 36600 - Ordinary Differential Equations
- General Education III Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15 Credits

Notes

Student should earn minimum of a B- or better in Critical Courses, see advisor for further details.

Students must earn a 2.0 average in MATH/STAT/CS/IE courses required for major.

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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Mathematics/Statistics, 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 upperlevel 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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (69-99 credits)

Required Major Courses (42-46 credits)

Average GPA in courses must be 2.00 excluding Calculus I, II, and III

- MA 35100 - Elementary Linear Algebra ♦
- STAT 35000 - Introduction To Statistics (satisfies Statistics Requirement)

- MA 34100 - Foundations Of Analysis
- or
- MA 44000 - Real Analysis Honors

- MA 41600 - Probability
- or
- STAT 41600 - Probability
- or
- STAT 51600 - Basic Probability And Applications

- STAT 41700 - Statistical Theory
- or
- STAT 51700 - Statistical Inference

- STAT 51200 - Applied Regression Analysis
- MA 35300 - Linear Algebra II With Applications

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 26100 - Multivariate Calculus
- MA 27101 - Honors Multivariate Calculus

Advanced Calculus Selective (3 credits)

- MA 36200 - Topics In Vector Calculus
- or
- MA 44200 - Multivariate Analysis I Honors

Advanced MA Selective (3-4 credits)

- MA 36600 - Ordinary Differential Equations
- or
- MA 37500 - Introduction To Discrete Mathematics
- or
- MA 42100 - Linear Programming And Optimization Techniques
- 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

Other Departmental/Program Course Requirements (27-53 credits)

- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy for core)
- or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)

- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
- Computing Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Multidisciplinary Experience* (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00

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

Electives (21-51 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication

- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00 ♦
- ENGL 10600 - First-Year Composition
or
- ENGL 10800 - Accelerated First-Year Composition
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 10800 - Mathematics As A Profession And A Discipline
- Free Elective - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- Computing Option (rec. CS 17700 & meets Teambuilding and Collaboration Experience) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00
- General Education I Option - Credit Hours: 3.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 30100 - An Introduction To Proof Through Real Analysis
- Free Elective - Credit Hours: 2.00

15-17 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra ♦
- STAT 35000 - Introduction To Statistics

- Technical Writing Option and Technical Presenting Option COM 21700 - Science Writing And Presentation - Credit Hours: 3.00 - 6.00
- Free Elective - Credit Hours: 3.00 - 6.00

15 Credits

Fall 3rd Year

- MA 34100 - Foundations Of Analysis
or
- MA 44000 - Real Analysis Honors
- MA 41600 - Probability
or
- STAT 41600 - Probability
or
- STAT 51600 - Basic Probability And Applications
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- Advance Calculus Selective - Credit Hours: 3.00
- STAT 41700 - Statistical Theory
or
- STAT 51700 - Statistical Inference
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- Great Issues Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- Advanced MA Selective - Credit Hours: 3.00
- STAT 51200 - Applied Regression Analysis
- General Education II Option - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 0.00 - 3.00
- Free Elective (Science, Technology & Society Selective Course) - Credit Hours: 3.00 - 6.00

15-18 Credits

Spring 4th Year

- MA 35300 - Linear Algebra II With Applications
- STAT Selective - Credit Hours: 3.00
- General Education III Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 6.00

15 Credits

Notes

Student should earn minimum of a B- or better in Critical Courses, see advisor for further details.

Students must earn a 2.0 average in MATH/STAT/IE courses required for major.

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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.

12-13 Credits Required

Pre-requisite Courses for Math Minor

To complete the required courses for the Mathematics minor, you will need to first complete the following pre-requisite courses [by completing the course or establishing credit]. These courses are not part of the Mathematics minor.

- 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

Requirements for the Minor

To qualify for the minor, the following classes must be completed with a C- or better.

Area 1 (Choose one course) 3 credits

- MA 35100 - Elementary Linear Algebra
- MA 51100 - Linear Algebra With Applications
- MA 26500 - Linear Algebra [must be completed with a B- or better] *
- MA 35300 - Linear Algebra II With Applications - [recommended for students with TR or CR for MA 26500]

Area 2 (Choose one course) 3 credits

- MA 45300 - Elements Of Algebra I (Algebra group)
- MA 45000 - Algebra Honors (Algebra group)
- MA 34100 - Foundations Of Analysis (Analysis group)
- MA 44000 - Real Analysis Honors (Analysis group)

Area 3 (Choose two course) 6-7 credits

Group Options:

The three courses used for Areas 2 and 3 cannot all be from the same group.

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 - Real Analysis Honors

- MA 44200 - Multivariate Analysis I Honors

Algebra

- MA 42100 - Linear Programming And Optimization Techniques
 - MA 45300 - Elements Of Algebra I
- or
- MA 45000 - Algebra Honors
 - MA 45400 - Galois Theory

Differential Equations

Only one differential equations course can be used in AREA 3.

- MA 36600 - Ordinary Differential Equations **
- or
- MA 30300 - Differential Equations And Partial Differential Equations For Engineering And The Sciences
- or
- MA 30400 - Differential Equations And Analysis Of Nonlinear Systems 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

Computer Science

- CS 24000 - Programming In C
- CS 25100 - Data Structures And Algorithms

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
- MA 51400 - Numerical Analysis

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
- MA 51600 - Advanced Probability And Options With Numerical Methods
- or
- STAT 51600 - Basic Probability And Applications
- or
- MA 51900 - Introduction To Probability
- or
- STAT 51900 - Introduction To Probability

Linear Algebra

- MA 35300 - Linear Algebra II With Applications

Notes

No substitutions are allowed.

A course can only be used in one area.

ALL COURSES FOR THIS MINOR LISTED BELOW MUST BE TAKEN AT PURDUE UNIVERSITY

*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 35300 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/or MA 30400 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

<http://www.physics.purdue.edu/people/index.php?type=facultyonly>

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.

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 ♦ Physics Majors are required to take the honors sections of PHYS 17200 - Modern Mechanics (also satisfies Science Selective for core and CoS teambuilding experience requirement) (fall)
- PHYS 27200 - Electric And Magnetic Interactions ♦ Physics Majors are required to take the honors sections of PHYS 27200 - Electric and Magnetic Interactions Honors (also satisfies Science Selective for core) (spring)

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)

- 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

Major Selective* - (24 credits - in chosen applied area(s) approved by the Physics and Astronomy Department)

Other Departmental/Program Course Requirements (37-66 credits)

- First Year Composition Option (satisfies Written Communication and Information Literacy for core) - Credit Hours: 3.00 - 4.00
- Technical Writing Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 0.00 - 3.00
- Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 0.00 - 3.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00 - 4.00
- Language I Option - Credit Hours: 0.00 - 4.00
- Language II Option - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Great Issues Option (satisfies one of the Science/Engineering requirements for Physics Selective) - Credit Hours: 3.00
- Multidisciplinary Experience (Select courses could satisfy Science, Technology & Society Selective for core) - Credit Hours: 0.00 - 3.00
- CHM 11500 - General Chemistry (satisfies Science Selective for core)
- CHM 11600 - General Chemistry (satisfies Science Selective for core)

- Statistics Option - Credit Hours: 3.00
- Computing Option - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education II Option (Select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Option (Select courses could satisfy Humanities Behavioral/Social Science for core) - Credit Hours: 3.00

Calculus I Option: (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option: (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Free Electives (1-15 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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 *
- Calculus I Option - Credit Hours: 4.00 - 5.00 *
- First Year Composition Option - Credit Hours: 3.00 - 4.00

- Teambuilding and Collaboration Experience - Credit Hours: 0.00

15-17 Credits

Spring 1st Year

- PHYS 27200 - Electric And Magnetic Interactions (Honors sections) * ♦
- CHM 11600 - General Chemistry *
- Calculus II Option - Credit Hours: 4.00 - 5.00 *
- Language I Option - 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
- Calculus III Option - Credit Hours: 4.00 - 5.00
- Language II Option - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 2nd Year

- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 42200 - Waves And Oscillations
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Statistics Option - Credit Hours: 3.00
- General Education I Option (Humanities) - Credit Hours: 3.00 *
- Free Elective (PHYS 23500) - Credit Hours: 1.00

16-17 Credits

Fall 3rd Year

- PHYS 41000 - Physical Mechanics I Honors
- PHYS 46000 - Quantum Mechanics I Honors
- PHYS 45000 - Intermediate Laboratory
- Technical Writing Option and Technical Presenting Option (COM 21700* Recommended) - Credit Hours: 3.00 - 6.00
- Computing Option (CS 15800 Recommended) - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 1.00

15-19 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
- General Education II Option (Humanities) - 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
- General Education III Option (Behav./Social Science) - Credit Hours: 3.00 *
- Multidisciplinary Experience (STS) - Credit Hours: 1.00 - 3.00 *
- Free Elective - Credit Hours: 2.00

15-17 Credits

Notes

*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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

Disclaimer

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

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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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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.
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Most College of Science degree programs contain free 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 free 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
- Culture and Diversity
- 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 - Modern Mechanics (also satisfies Science Selective for core and CoS teambuilding experience requirement) (fall)
- PHYS 27200 - Electric And Magnetic Interactions ♦ Physics Majors are required to take the honors sections of PHYS 27200 - Electric and Magnetic Interactions Honors (also satisfies Science Selective for core) (spring)

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)
-
- 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

Major Selective* - (24 credits - in chosen applied area(s) approved by the Physics and Astronomy Department)

Other Departmental/Program Course Requirements (37-66 credits)

- First Year Composition Option (satisfies Written Communication and Information Literacy for core) - Credit Hours: 3.00 - 4.00
- Technical Writing Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 0.00 - 3.00
- Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 0.00 - 3.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00 - 4.00
- Language I Option - Credit Hours: 0.00 - 4.00
- Language II Option - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Great Issues Option (satisfies one of the Science/Engineering requirements for Physics Selective) - Credit Hours: 3.00
- Multidisciplinary Experience (Select courses could satisfy Science, Technology & Society Selective for core) - Credit Hours: 0.00 - 3.00
- CHM 11500 - General Chemistry (satisfies Science Selective for core)
- CHM 11600 - General Chemistry (satisfies Science Selective for core)
- Statistics Option - Credit Hours: 3.00
- Computing Option - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education II Option (Select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Option (Select courses could satisfy Humanities Behavioral/Social Science for core) - Credit Hours: 3.00

Calculus I Option: (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option: (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Electives (1-18 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Additional Degree Requirements

Program Requirements

Fall 1st Year

- PHYS 17200 - Modern Mechanics (Honors sections) * ♦
- CHM 11500 - General Chemistry *
- Calculus I Option - Credit Hours: 4.00 - 5.00 *
- First Year Composition Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00

15-17 Credits

Spring 1st Year

- PHYS 27200 - Electric And Magnetic Interactions (Honors sections) * ♦
- CHM 11600 - General Chemistry *
- Calculus II Option - Credit Hours: 4.00 - 5.00 *
- Language I Option - 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
- Calculus III Option - Credit Hours: 4.00 - 5.00 *
- Language II Option - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 2nd Year

- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 42200 - Waves And Oscillations
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Statistics Option - Credit Hours: 3.00
- General Education I Option (Humanities) - Credit Hours: 3.00 *
- Free Elective (PHYS 23500) - Credit Hours: 1.00

16-17 Credits

Fall 3rd Year

- PHYS 31000 - Intermediate Mechanics
- PHYS 33000 - Intermediate Electricity And Magnetism
- PHYS 45000 - Intermediate Laboratory
- Technical Writing Option and Technical Presenting Option (COM 21700* Recommended) - Credit Hours: 3.00 - 6.00
- Computing Option (CS 15800 Recommended) - Credit Hours: 3.00 - 4.00

15-19 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
- General Education II Option (Humanities) - 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
- Free 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
- General Education III Option (Behav./Social Science) - Credit Hours: 3.00 *
- Multidisciplinary Experience (STS) - Credit Hours: 1.00 - 3.00 *
- Free Electives - Credit Hours: 2.00

15-17 Credits

Notes

*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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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 593 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 172H and 272H as freshmen. Students from other majors who have taken PHYS 172/272 may switch into the Honors Physics major. Admission to, and continuation in, the honors program requires that all the core courses (PHYS 17200, 27200, 30600, 30700, 34400, 34000, and 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, 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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 of PHYS 17200 - Modern Mechanics (also satisfies Science Selective for core and CoS teambuilding experience requirement)
- PHYS 27200 - Electric And Magnetic Interactions ♦ Physics Majors are required to take the honors sections of PHYS 27200 - Electric and Magnetic Interactions Honors (also satisfies Science Selective for core)

Calculus III Option - Select from (4-5 credits)

- MA 26100 - Multivariate Calculus
- or
- MA 27101 - Honors Multivariate Calculus
-
- 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

Major Selective* (15-16 credits)

- PHYS/ASTR Selective \geq 500 level - Credit Hours: 3.00
 - PHYS/ASTR Selective \geq 500 level - Credit Hours: 3.00
-
- PHYS 53600 - Electronic Techniques For Research or PHYS 57000 Computational Physics (spring even years)
- or
- PHYS 58000 - Computational Physics
-
- Science/Engineering Selective \geq 300 level (could be met by CoS statistics requirement) - Credit Hours: 3.00
 - Science/Engineering Selective \geq 300 level (could be met by CoS Great Issues requirement) - Credit Hours: 3.00

Other Departmental/Program Course Requirements (37-66 credits)

- First Year Composition Option (satisfies Written Communication and Information Literacy for core) - Credit Hours: 3.00 - 4.00
- Technical Writing Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 0.00 - 3.00
- Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 0.00 - 3.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00 - 4.00
- Language I Option - Credit Hours: 0.00 - 4.00
- Language II Option - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Great Issues Option (satisfies one of the Science/Engineering requirements for Physics Selective) - Credit Hours: 3.00

- Multidisciplinary Experience (Select courses could satisfy Science, Technology & Society Selective for core) - Credit Hours: 0.00 - 3.00
- CHM 11500 - General Chemistry (satisfies Science Selective for core)
- CHM 11600 - General Chemistry (satisfies Science Selective for core)
- Statistics Option - Credit Hours: 3.00
- Computing Option - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education II Option (Select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Option (Select courses could satisfy Humanities Behavioral/Social Science for core) - Credit Hours: 3.00

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Free Electives (1-17 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- PHYS 17200 - Modern Mechanics (Honors sections) ♦*
- Calculus I Option* - Credit Hours: 4.00 - 5.00
- CHM 11500 - General Chemistry *
- First Year Composition Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00

15-17 Credits

Spring 1st Year

- PHYS 27200 - Electric And Magnetic Interactions (Honors sections) ♦*
- CHM 11600 - General Chemistry *
- Calculus II Option* - Credit Hours: 4.00 - 5.00
- Language I Option - 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
- Calculus III Option - Credit Hours: 4.00 - 5.00
- Language II Option - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 2nd Year

- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 42200 - Waves And Oscillations
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Statistics Option - Credit Hours: 3.00
- Science/Engineering Selective ≥ 300 - Credit Hours: 3.00
- Free Elective PHYS 23500

16-17 Credits

Fall 3rd Year

- PHYS 41000 - Physical Mechanics I Honors
- PHYS 46000 - Quantum Mechanics I Honors
- PHYS 45000 - Intermediate Laboratory
- Technical Writing Option and Technical Presenting Option COM 21700* (Recommended)- Credit Hours: 3.00 - 6.00
- General Education I Option (Humanities)* - Credit Hours: 3.00
- Free Elective - Credit Hours: 1.00

15-18 Credits

Spring 3rd Year

- PHYS 41100 - Physical Mechanics II Honors
- PHYS 46100 - Quantum Mechanics II Honors
- PHYS 43000 - Electricity And Magnetism I Honors
- General Education II Option (Humanities)* - Credit Hours: 3.00
- Computing Option CS 15800 (Recommended)- Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 1.00

15-16 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

- Adv. Lab Option - Credit Hours: 3.00 - 4.00
- PHYS/ASTR Selective ≥ 500 - Credit Hours: 3.00
- PHYS/ASTR Selective ≥ 500 - Credit Hours: 3.00
- General Education III Option (Behav./Social Science)* - Credit Hours: 3.00
- Multidisciplinary Experience (STS)* - Credit Hours: 2.00
- Free Elective - Credit Hours: 1.00

15-16 Credits

Notes

*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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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, 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.

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 free 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, 49000, or 59000).

Opportunities for employment in fields related to physics will also be enhanced by taking free-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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 Major Courses (53-55 credits)

Required Major Courses (41-42 credits)

- PHYS 17200 - Modern Mechanics ♦ Physics Majors are required to take the honors sections of PHYS 17200 - Modern Mechanics (also satisfies Science Selective for core and CoS teambuilding experience requirement)
- PHYS 27200 - Electric And Magnetic Interactions ♦ Physics Majors are required to take the honors sections of PHYS 27200H - Electric and Magnetic Interactions Honors (also satisfies Science Selective for core) (spring)

Calculus III Option - Select from (4-5 credits)

- MA 26100 - Multivariate Calculus
 - or
 - MA 27101 - Honors Multivariate Calculus (Satisfies Quantitative Reasoning for the 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

Major Selective* (12-13 credits)

- PHYS/ASTR \geq 300 level - Credit Hours: 3.00
- PHYS 53600 - Electronic Techniques For Research or PHYS 57000 - Computational Biomolecular Phys
- or
- PHYS 58000 - Computational Physics
- Science/Engineering Elective \geq 300 level (could be met by CoS statistics requirement) - Credit Hours: 3.00
- Science/Engineering Elective \geq 300 level (could be met by CoS Great Issues requirement) - Credit Hours: 3.00

Other Departmental/Program Course Requirements (37-66 credits)

- First Year Composition Option (satisfies Written Communication and Information Literacy for core) - Credit Hours: 3.00 - 4.00
- Technical Writing Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 0.00 - 3.00
- Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 0.00 - 3.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00 - 4.00
- Language I Option - Credit Hours: 0.00 - 4.00
- Language II Option - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Great Issues Option (satisfies one of the Science/Engineering requirements for Physics Selective) - Credit Hours: 3.00
- Multidisciplinary Experience (Select courses could satisfy Science, Technology & Society Selective for core) - Credit Hours: 0.00 - 3.00
- CHM 11500 - General Chemistry (satisfies Science Selective for core)
- CHM 11600 - General Chemistry (satisfies Science Selective for core)

- Statistics Option - Credit Hours: 3.00
- Computing Option - Credit Hours: 3.00 - 4.00
- General Education I Option (Select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education II Option (Select courses could satisfy Human Cultures Humanities for core) - Credit Hours: 3.00
- General Education III Option (Select courses could satisfy Humanities Behavioral/Social Science for core) - Credit Hours: 3.00

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Free Electives (1-30 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- PHYS 17200 - Modern Mechanics (Honors sections) ♦*
- Calculus I Option* - Credit Hours: 4.00 - 5.00

- CHM 11500 - General Chemistry *
- First Year Composition Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience - Credit Hours: 0.00

15-17 Credits

Spring 1st Year

- PHYS 27200 - Electric And Magnetic Interactions (Honors sections) ♦ *
- CHM 11600 - General Chemistry *
- Calculus II Option* - Credit Hours: 4.00 - 5.00
- Language I Option - 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
- Calculus III Option* - Credit Hours: 4.00 - 5.00
- Language II Option - Credit Hours: 3.00 - 4.00

15-17 Credits

Spring 2nd Year

- PHYS 30700 - Mathematical Methods Of Physics II
- PHYS 42200 - Waves And Oscillations
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Statistics Option - Credit Hours: 3.00
- Free Elective PHYS 23500 (Recommended)
- Free Elective - Credit Hours: 2.00

15-16 Credits

Fall 3rd Year

- PHYS 31000 - Intermediate Mechanics
- PHYS 33000 - Intermediate Electricity And Magnetism
- PHYS 45000 - Intermediate Laboratory
- Technical Writing Option and Technical Presenting Option COM 21700* (Recommended)- Credit Hours: 3.00 - 6.00
- General Education I Option (Humanities)* - Credit Hours: 3.00

15-18 Credits

Spring 3rd Year

- PHYS 36000 - Quantum Mechanics
- PHYS 51500 - Thermal And Statistical Physics
- Computing Option CS 15800 (Recommended) - Credit Hours: 3.00 - 4.00
- General Education II Option (Humanities)* - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- PHYS/ASTR Selective ≥ 300 level - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- General Education III Option (Behav./Social Science)* - Credit Hours: 3.00 *
- Science/Engineering Selective ≥ 300 - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Spring 4th Year

- Adv. Lab Option - Credit Hours: 3.00 - 4.00
- Multidisciplinary Experience (STS)* - Credit Hours: 1.00 - 3.00
- Science/Engineering Selective ≥ 300 - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-18 Credits

Notes

* 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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

15-16 Credits Required

Prerequisite Information (6 credits)

The following prerequisite courses must be completed:

- PHYS 15200 - Mechanics
- or
- PHYS 17200 - Modern Mechanics

- PHYS 24100 - Electricity And Optics
- or
- PHYS 26100 - Electricity And Optics
- or
- PHYS 27200 - Electric And Magnetic Interactions

Requirements for the Minor

A student must receive a GPA of 2.0 or higher in required minor courses

Required Courses (12 - 13 credits)

- PHYS 34200 - Modern Physics
- or
- PHYS 34400 - Modern Physics

- ASTR 36300 - The Solar System
- and
- ASTR 36400 - Stars And Galaxies
- and
- ASTR 37000 - Cosmology

Additional Course (3 credits)

- PHYS 56000 - Stellar Evolution
- or
- ASTR 56000 - Stellar Evolution
- or
- PHYS 56100 - Galaxies And Large Scale Structure
- or
- ASTR 56100 - Galaxies And Large Scale Structure
- or
- PHYS 56200 - Introduction To High Energy Astrophysics
- or
- ASTR 56200 - Introduction To High Energy Astrophysics
- or
- PHYS 56300 - Astroparticle Physics
- or
- ASTR 56300 - Astroparticle Physics
- or
- ASTR 56700 - Observational Techniques In Astronomy
- or
- PHYS 56700 - Observational Techniques In Astronomy
- or
- PHYS/ASTR - Approved PHYS/ASTR at or above 400 level - Credit Hours: 3.00

Notes

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

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 Minor

10-11 Credits Required

Minor Prerequisites

To complete the required courses listed below, the following prerequisite courses must be completed.

- 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

- PHYS 15200 - Mechanics
and
- PHYS 24200 - Introduction To Heat And Thermal Physics
or
- PHYS 17200 - Modern Mechanics

- PHYS 24100 - Electricity And Optics
and
- PHYS 25200 - Electricity And Optics Laboratory
or
- PHYS 27200 - Electric And Magnetic Interactions

Requirements for the Minor

A student must receive a GPA of 2.0 or higher in required minor courses

Required Courses

All required courses below must be taken at Purdue University.

- PHYS 34200 - Modern Physics
or
- PHYS 34400 - Modern Physics

- PHYS 34000 - Modern Physics Laboratory

Additional Courses (6 credits)

Choose from Physics (PHYS) courses 30000 level or above.

*Except PHYS 31700, PHYS 39000, 49000, or 59000.

Notes

In addition, GPA over all PHYS courses must be 2.0 or higher.

These requirements apply to students who matriculate at Purdue in or after Fall 2011.

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

<http://www.stat.purdue.edu/people/faculty/index.php>

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: Linda Foster foster2@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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (63-93 credits)

Required Major Courses (36-40 credits)

Average GPA in courses must be 2.00 excluding Calculus I, II, and III

- MA 35100 - Elementary Linear Algebra ♦ **Grade of C or better required.**
- STAT 35000 - Introduction To Statistics (satisfies Statistics Requirement)

- 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 ♦

- STAT 41700 - Statistical Theory

or

- STAT 51700 - Statistical Inference

- STAT 51200 - Applied Regression Analysis

Calculus I Option (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option (4-5 credits)

(satisfies Quantitative Reasoning for core) **Grade of C or better required.**

- MA 26100 - Multivariate Calculus
- MA 27101 - Honors Multivariate Calculus

Applied STAT Selective (6-7 credits)

(Check with advisor for additional approved courses.)

- STAT 51300 - Statistical Quality Control
- or
- STAT 51400 - Design Of Experiments
- or
- STAT 42000 - Introduction To Time Series
- or
- STAT 47201 - Actuarial Models- Life Contingencies
- or
- STAT 47301 - Introduction To Arbitrage-Free Pricing Of Financial Derivatives
- or
- STAT 50600 - Statistical Programming And Data Management
- or
- STAT 52200 - Sampling And Survey Techniques

Other Departmental/Program Course Requirements (27-53 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
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)

- Language I Option * (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language II Option * (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Language III/Culture/Diversity Option * (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
- Technical Writing Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
- Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
- Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
- 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
- General Education III Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core) - Credit Hours: 3.00
- Computing Option - Credit Hours: 3.00 - 4.00
- Teambuilding and Collaboration Experience * - Credit Hours: 0.00 - 4.00
- Multidisciplinary Experience (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00
- Great Issues Option - Credit Hours: 3.00

Electives (27-57 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

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

- Free Elective - Credit Hours: 1.00 (STAT 19000 Recommended)
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 4.00
- Calculus I Selective - Credit Hours: 4.00 - 5.00

15-18 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- Computing Option (CS 17700 Recommended) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00 ♦
- General Education I Option - Credit Hours: 3.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 5.00

15-17 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra
- STAT 35000 - Introduction To Statistics
- COM 21700 - Science Writing And Presentation Recommended for Technical Writing Option & Technical Presenting Option
- Free Elective - Credit Hours: 3.00 - 6.00

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)
- Laboratory Science Option I - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- STAT 41700 - Statistical Theory (or STAT 51700)
- Applied STAT Selective - Credit Hours: 3.00 - 4.00
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 6.00

15-17 Credits

Fall 4th Year

- STAT 51200 - Applied Regression Analysis
- General Education II Option - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 3.00

- Free Elective/Science, Technology & Society Selective Course - Credit Hours: 6.00 - 9.00

15-18 Credits

Spring 4th Year

- Applied STAT Selective - Credit Hours: 3.00 - 4.00
- General Education III Option - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 6.00

15-16 Credits

Notes

Student should earn minimum of a C.

Students must earn a 2.0 average in MATH/STAT/IE courses required for major. Calculus I, II, and III must have a grade of C or higher.

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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

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.

Degree Requirements

120 Credits Required

Data Science Major Courses (47-51 credits)

- MA 26100 - Multivariate Calculus
or
- MA 27101 - Honors Multivariate Calculus

- MA 35100 - Elementary Linear Algebra
- CS 18000 - Problem Solving And Object-Oriented Programming ♦ (satisfies College of Science Computing and Teambuilding requirements)
- CS 18200 - Foundations Of Computer Science
- CS 19100 - Freshman Resources Seminar
- CS 19300 - Tools
- CS 38003 - Python Programming

- 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
- STAT 35500 - Statistics For Data Science
- STAT 41600 - Probability
- STAT 41700 - Statistical Theory

- 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)

- CS Elective I - Credit Hours: 3.00
- CS Elective II - Credit Hours: 3.00
- STAT Elective - Credit Hours: 3.00
- Capstone Course or Experience - Credit Hours 0.00 - 3.00

Other Departmental/Program Course Requirements (45-55 credits)

- ENGL 10600 - First-Year Composition (*satisfies Written Communication and Information Literacy*)
or
- ENGL 10800 - Accelerated First-Year Composition (*satisfies Written Communication and Information Literacy*)
or
- HONR 19903 - Interdisciplinary Approaches In Writing (*satisfies Written Communication and Information Literacy*)

- Technical Writing - COM 21700 recommended (*may satisfy Oral Communication*) select from list - Credit Hours: 3.00
 - Technical Presentation - COM 21700 recommended (*may satisfy Oral Communication*) select from list - Credit Hours: 3.00
 - Language I * - select three options from list - Credit Hours: 3.00 - 4.00
 - Language II * - select three options from list - Credit Hours: 3.00 - 4.00
 - Language and Culture III - (*may satisfy Human Cultures Humanities*) select three options from list - Credit Hours: 3.00 - 4.00
 - General Education I - (*may satisfy Human Culture Humanities and Behavioral/Social Science*) select from list - Credit Hours: 3.00
 - General Education II - (*may satisfy Human Culture Humanities and Behavioral/Social Science*) -select from list - Credit Hours: 3.00
 - General Education III - select from list - Credit Hours: 3.00
 - Great Issues - select from list - Credit Hours: 3.00
 - Multidisciplinary Experience - (*may satisfy Science, Technology & Society*) - select from list - Credit Hours: 1.00 - 3.00
 - Teambuilding and Collaboration Experience - CS 18000 meets requirement - select from list
 - Lab Science I selective - (*satisfies Science*) - select from list - Credit Hours: 3.00 - 4.00
 - Lab Science II selective - (*may satisfy Science*) - select from list - Credit Hours: 3.00 - 4.00
-
- MA 16100 - Plane Analytic Geometry And Calculus I ♦(*satisfies Quantitative Reasoning*) -must have C or better to meet prerequisite for CS 18200
- or
- MA 16500 - Analytic Geometry And Calculus I ♦ (*satisfies Quantitative Reasoning*) - must have C or better to meet prerequisite for CS 18200)
-
- MA 16200 - Plane Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning*)
- or
- MA 16600 - Analytic Geometry And Calculus II (*satisfies Quantitative Reasoning*)

Electives (14-28 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

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 ♦

- ENGL 10600 - First-Year Composition

or

- ENGL 10800 - Accelerated First-Year Composition

or

- HONR 19903 - Interdisciplinary Approaches In Writing

or

- Language 10100 - Credit Hours: 3.00 - 4.00

- Free Elective - Credit Hours: 1.00

14-16 Credits

Spring 1st Year

- CS 18200 - Foundations Of Computer Science *
- CS 38003 - Python Programming
- General Education I - Credit Hours: 3.00

- MA 16200 - Plane Analytic Geometry And Calculus II

or

- MA 16600 - Analytic Geometry And Calculus II

- Language 10100 - Credit Hours: 3.00 - 4.00

or

- ENGL 10600 - First-Year Composition

or

- ENGL 10800 - Accelerated First-Year Composition

or

- HONR 19903 - Interdisciplinary Approaches In Writing

14-16 Credits

Fall 2nd Year

- CS 24200 - Introduction To Data Science

or

- STAT 24200 - Introduction To Data Science

- MA 26100 - Multivariate Calculus

or

- MA 27101 - Honors Multivariate Calculus

- STAT 35500 - Statistics For Data Science *
- Language 10200 - 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
- Language 20100/Culture or Diversity course - Credit Hours: 3.00 - 4.00
- Science, Technology, and Society - Credit Hours: 1.00 - 3.00

13-16 Credits

Fall 3rd Year

- CS 37300 - Data Mining And Machine Learning
- STAT 41700 - Statistical Theory
- General Education II - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- COM 21700 - Science Writing And Presentation

15 Credits

Spring 3rd Year

- CS Elective I - Credit Hourse 3.00
- STAT Elective - Credit Hours: 3.00
- Great Issues - Credit Hours: 3.00
- General Education III - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15 Credits

Fall 4th Year

- CS 49000 - Topics In Computer Sciences For Undergraduates
- or
- STAT 49000 - Topics In Statistics For Undergraduates -Large Scale Data Analytics (LSDA)
- CS elective II - Credit Hours: 3.00
- Lab Science I - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

15-16 Credits

Spring 4th Year

- Capstone Experience/Course - Credit Hours: 0.00 - 3.00
- Lab Science II - Credit Hours: 3.00 - 4.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00
- Elective - Credit Hours: 3.00

12-16 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 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.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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 - Math Emphasis, 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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (69-99 credits)

Required Major Courses (42-46 credits)

Average GPA in courses must be 2.00 excluding Calculus I, II and III

- MA 35100 - Elementary Linear Algebra ♦ Grade of C or Better Required
- STAT 35000 - Introduction To Statistics (satisfies Statistics Requirement)

- MA 34100 - Foundations Of Analysis

or

- MA 44000 - Real Analysis Honors

- MA 41600 - Probability ♦

or

- STAT 41600 - Probability ♦

or

- STAT 51600 - Basic Probability And Applications ♦

- STAT 41700 - Statistical Theory

or

- STAT 51700 - Statistical Inference

- STAT 51200 - Applied Regression Analysis

- MA 35300 - Linear Algebra II With Applications

Calculus I Option (4-5 credits)

(satisfies Quantitative Reasoning for core)

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

Calculus II Option (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II
- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core) Grade of C or Better Required

- MA 26100 - Multivariate Calculus
- MA 27101 - Honors Multivariate Calculus

Advance Calculus Selective (3 credits)

- MA 36200 - Topics In Vector Calculus
- or
- MA 44200 - Multivariate Analysis I Honors
- or
- MA 51000 - Vector Calculus

Advanced MA Selective (3-4 credits)

- MA 36600 - Ordinary Differential Equations
- or
- MA 37500 - Introduction To Discrete Mathematics
- or
- MA 42100 - Linear Programming And Optimization Techniques
- 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

Other Departmental/Program Course Requirements (27-53 credits)

- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy for core)
- or
- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)
-
- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
 - Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00

- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00
 - Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00
 - Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
 - Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00
 - General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
 - General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
 - General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science for core) - Credit Hours: 3.00
 - Computing Option - Credit Hours: 3.00 - 4.00
 - Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00
 - Great Issues Option - Credit Hours: 3.00
 - Multidisciplinary Experience* (Select courses COULD satisfies Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00
- * Requirement may be met with a zero credit experiential learning option. See your advisor for more information.

Electives (21-51 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

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

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00
- ENGL 10600 - First-Year Composition
- or
- ENGL 10800 - Accelerated First-Year Composition

- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective (STAT 19000 - Topics In Statistics For Undergraduates)
- Free Elective - Credit Hours: 3.00 - 4.00

15-18 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- Computing Option (rec. CS 17700 & meets Teambuilding and Collaboration Experience) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00 ♦
- General Education I Option - Credit Hours: 3.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 30100 - An Introduction To Proof Through Real Analysis
- Free Elective - Credit Hours: 2.00

15-17 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra
- STAT 35000 - Introduction To Statistics
- Technical Writing Option and Technical Presenting Option COM 21700 - Science Writing And Presentation - Credit Hours: 3.00 - 6.00
- Free Elective - Credit Hours: 3.00 - 6.00

15 Credits

Fall 3rd Year

- MA 34100 - Foundations Of Analysis
- or
- MA 44000 - Real Analysis Honors
- MA 41600 - Probability ♦
- or
- STAT 41600 - Probability ♦
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00

- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- MA 36200 - Topics In Vector Calculus
or
- MA 44200 - Multivariate Analysis I Honors
or
- MA 51000 - Vector Calculus

- STAT 41700 - Statistical Theory
or
- STAT 51700 - Statistical Inference

- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credits Hours: 6.00

15-16 Credits

Fall 4th Year

- Advanced MA Selective - Credit Hours: 3.00
- STAT 51200 - Applied Regression Analysis
- General Education II Option - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 0.00 - 3.00
- Free Elective (Science, Technology & Society Selective Course) - Credit Hours: 3.00 - 6.00

15-18 Credits

Spring 4th Year

- MA 35300 - Linear Algebra II With Applications
- STAT Selective - Credit Hours: 3.00
- General Education III Option - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Notes

Student should earn minimum of a C.

Students must earn a 2.0 average in MATH/STAT/IE courses required for major.

Calculus I, II, III and MA 35100 must have a grade of C or higher.

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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 Honors, BS

About the Program

Statistics at Purdue University is the only doctorate-granting program in statistics in Indiana and 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. Students enjoy a great deal of interaction with faculty as well as small classes. For students with excellent preparation in high school, 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

Degree Requirements

120 Credits Required

Curriculum and Degree Requirements

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
- Free 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 free 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 free 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
- Culture and Diversity
- 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 (69-99 credits)

Required Major Courses (42-46 credits)

Average GPA in courses must be 2.00 excluding Calculus I, II, and III. An Average GPA in MA 44000, MA 44200, MA 45000, STAT 51600, or STAT 51700 must be 3.5 or higher - must take **three** of these five courses*.

- MA 35100 - Elementary Linear Algebra ♦ Grade of C or Better Required
- STAT 35000 - Introduction To Statistics (satisfies Statistics Requirement)
- MA 34100 - Foundations Of Analysis *

or

- MA 44000 - Real Analysis Honors *

- MA 41600 - Probability * ♦

or

- STAT 41600 - Probability * ♦

or

- STAT 51600 - Basic Probability And Applications * ♦

- STAT 41700 - Statistical Theory *

or

- STAT 51700 - Statistical Inference *

- STAT 51200 - Applied Regression Analysis

- MA 35300 - Linear Algebra II With Applications

Calculus I Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16100 - Plane Analytic Geometry And Calculus I ♦

- MA 16500 - Analytic Geometry And Calculus I ♦

Calculus II Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core)

- MA 16200 - Plane Analytic Geometry And Calculus II

- MA 16600 - Analytic Geometry And Calculus II

Calculus III Option - Select from (4-5 credits)

(satisfies Quantitative Reasoning for core) Grade of C or Better Required

- MA 26100 - Multivariate Calculus

- MA 27101 - Honors Multivariate Calculus

Advance Calculus Selective (3 credits)

- MA 36200 - Topics In Vector Calculus

or

- MA 44200 - Multivariate Analysis I Honors *

or

- MA 51000 - Vector Calculus

Advanced MA Selective (3-4 credits)

- MA 36600 - Ordinary Differential Equations

or

- MA 37500 - Introduction To Discrete Mathematics

or

- MA 42100 - Linear Programming And Optimization Techniques

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 *

or

- MA 52000 - Boundary Value Problems Of Differential Equations

(check with advisor for additional approved courses)

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

Other Departmental/Program Course Requirements (27-53 credits)

- ENGL 10600 - First-Year Composition (satisfies Written Communication and Information Literacy for core)

or

- ENGL 10800 - Accelerated First-Year Composition (satisfies Written Communication and Information Literacy for core)

- Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00

- Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00

- Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core) - Credit Hours: 0.00 - 4.00

- Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core) - Credit Hours: 3.00 - 6.00

- Laboratory Science I Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00

- Laboratory Science II Option (satisfies Science Selective for core) - Credit Hours: 3.00 - 4.00

- 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

- General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core) - Credit Hours: 3.00

- Computing Option - Credit Hours: 3.00 - 4.00

- Teambuilding and Collaboration Experience* - Credit Hours: 0.00 - 4.00

- Great Issues Option - Credit Hours: 3.00

- Multidisciplinary Experience* (Select courses COULD satisfy Science, Technology, and Society Selective for core) - Credit Hours: 0.00 - 3.00

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

Electives (21-51 credits)

University Core Requirements

- Human Cultures Humanities
- Human Cultures Behavioral/Social Science
- Information Literacy
- Science #1
- Science #2
- Science, Technology, and Society
- Written Communication
- Oral Communication
- Quantitative Reasoning
- For a complete listing of course selectives, visit the Provost's Website.

Prerequisite Information:

For current pre-requisites for courses, click here.

Program Requirements

Fall 1st Year

- Calculus I Option - Credit Hours: 4.00 - 5.00
- ENGL 10600 - First-Year Composition
- or
- ENGL 10800 - Accelerated First-Year Composition
- Language I Option - Credit Hours: 3.00 - 4.00
- Free Elective STAT 19000 - Topics In Statistics For Undergraduates
- Free Elective - Credit Hours: 4.00

15-18 Credits

Spring 1st Year

- Calculus II Option - Credit Hours: 4.00 - 5.00
- Computing Option (rec. CS 17700 & meets Teambuilding and Collaborating Experience) - Credit Hours: 3.00 - 4.00
- Language II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 2.00

15-18 Credits

Fall 2nd Year

- Calculus III Option - Credit Hours: 4.00 - 5.00 ♦
- General Education I Option - Credit Hours: 3.00
- Language III/Culture/Diversity Option - Credit Hours: 3.00 - 4.00
- Free Elective MA 30100 - An Introduction To Proof Through Real Analysis
- Free Elective - Credit Hours: 2.00

15-17 Credits

Spring 2nd Year

- MA 35100 - Elementary Linear Algebra
- STAT 35000 - Introduction To Statistics
- Technical Writing Option and Technical Presenting Option COM 21700 - Science Writing And Presentation - Credit Hours: 3.00 - 6.00
- Free Elective - Credit Hours: 0.00 - 3.00
- Free Elective - Credit Hours: 3.00

15 Credits

Fall 3rd Year

- MA 34100 - Foundations Of Analysis *
- or
- MA 44000 - Real Analysis Honors *
- MA 41600 - Probability * ♦
- or
- STAT 41600 - Probability * ♦
- or
- STAT 51600 - Basic Probability And Applications * ♦
- Laboratory Science I Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00

15-16 Credits

Spring 3rd Year

- MA 36200 - Topics In Vector Calculus
- or
- MA 44200 - Multivariate Analysis I Honors *
- STAT 41700 - Statistical Theory *
- or
- STAT 51700 - Statistical Inference *
- Laboratory Science II Option - Credit Hours: 3.00 - 4.00
- Free Elective - Credit Hours: 3.00

- Free Elective - Credit Hours: 3.00

15-16 Credits

Fall 4th Year

- MA 35300 - Linear Algebra II With Applications
- STAT 51200 - Applied Regression Analysis
- General Education II Option - Credit Hours: 3.00
- Multidisciplinary Experience - Credit Hours: 0.00 - 3.00
- Free Elective (Science, Technology & Society Selective Course) - Credit Hours: 3.00 - 6.00

15-18 Credits

Spring 4th Year

- Advanced MA Selective MA 45000 - Algebra Honors *
- STAT Selective - Credit Hours: 3.00
- General Education III Option - Credit Hours: 3.00
- Free Elective - Credit Hours: 3.00
- Great Issues Option - Credit Hours: 3.00

15-16 Credits

Notes

Student should earn minimum of a C.

Students must earn a 2.0 average in MATH/STAT/IE courses required for major AND Average GPA in MA 44000, MA 44200, MA 45000, STAT 51600, or STAT 41700 must be 3.5 or higher - must take **three** of these five courses*. Calculus I, II, III and MA 35100 must have a grade of C or higher.

2.0 Graduation GPA required for Bachelor of Science degree.

Foreign Language Courses

Foreign Language proficiency requirements vary by program. For acceptable languages and proficiency levels, see your advisor:

American Sign Language, Arabic, Chinese, French, German, (ancient) Greek, Hebrew, Italian, Japanese, Latin, Portuguese, Russian, Spanish

Critical Course

The ♦ course is considered critical. A Critical Course is one that a student must be able to pass to persist and succeed in a particular major.

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Minor

Statistics Minor

15 Credits Required

Pre-requisite Courses for Stat Minor

To complete the required courses for the Statistics minor, you will need to first complete the following pre-requisite courses [by completing the course or establishing credit]. These courses are not part of the Statistics minor.

- MA 16500 - Analytic Geometry And Calculus I or
- MA 16100 - Plane Analytic Geometry And Calculus I or
- MA 16010 - Applied Calculus I [Note: students only completing MA 16010 will have limited pathways to finish the minor due to pre-requisites]

Minor Requirements

To obtain a minor in Statistics, the following courses must be completed. A course can only be used in one area.

3 credits from AREA 1, 3 credits from AREA 2, 3 credits from AREA 3, 6 credits from AREA 4 = 15 TOTAL Credits

Area 1

CHOOSE ONE COURSE

- STAT 35000 - Introduction To Statistics
- STAT 50300 - Statistical Methods For Biology
- STAT 51100 - Statistical Methods
- MGMT 30500 - Business Statistics MANAGEMENT STUDENTS ONLY!
- IE 33000 - Probability And Statistics In Engineering II IE STUDENTS ONLY!*

Area 2

CHOOSE ONE COURSE

- STAT 22500 - Introduction To Probability Models
- STAT 31100 - Introductory Probability
- STAT 41600 - Probability
- MA 41600 - Probability
- IE 23000 - Probability And Statistics In Engineering I IE STUDENTS ONLY!*

Area 3

- STAT 51200 - Applied Regression Analysis

Area 4

CHOOSE TWO COURSES

- STAT 51300 - Statistical Quality Control
- or
- IE 53000 - Quality Control

- STAT 51400 - Design Of Experiments
- STAT 41700 - Statistical Theory
- IE 33600 - Operations Research - Stochastic Models

Notes

AT LEAST 9 credits of the 15 credit hour minor must be STAT courses.

IE 53000 and MA 41600 are considered a STAT course due to cross-listing

Due to Minor Requirements and Pre-requisites, Below are the Suggested Pathways for Specific Majors

Krannert Students

- STAT 22500 - Introduction To Probability Models
- MGMT 30500 - Business Statistics
- STAT 51200 - Applied Regression Analysis
- STAT 51300 - Statistical Quality Control
- STAT 51400 - Design Of Experiments

IE Majors

- IE 23000 - Probability And Statistics In Engineering I
- IE 33000 - Probability And Statistics In Engineering II
- STAT 51200 - Applied Regression Analysis

- STAT 51300 - Statistical Quality Control
- or
- IE 53000 - Quality Control

- STAT 51400 - Design Of Experiments

Pharmacy, Nursing, Biology, Agriculture Majors

- STAT 50300 - Statistical Methods For Biology
- STAT 22500 - Introduction To Probability Models
- STAT 51200 - Applied Regression Analysis

- STAT 51300 - Statistical Quality Control
- STAT 51400 - Design Of Experiments

MATH Majors

- STAT 35000 - Introduction To Statistics
- STAT 41600 - Probability
- STAT 51200 - Applied Regression Analysis
- STAT 41700 - Statistical Theory
- STAT 51400 - Design Of Experiments

Science

- STAT 51100 - Statistical Methods
- STAT 22500 - Introduction To Probability Models
- STAT 51200 - Applied Regression Analysis
- STAT 51300 - Statistical Quality Control
- STAT 51400 - Design Of Experiments

Notes

ALL COURSES FOR THIS MINOR MUST BE TAKEN AT PURDUE UNIVERSITY

Students Majoring in Actuarial Science, Applied Statistics, Mathematical Statistics, and/or Statistics with Math cannot complete this minor.

Courses that do not require calculus, such as PSY 20100 and SOC 38200, are not equivalent to the courses listed.

Credit for the STAT minor is not allowed for more than one course in each group (per Course Catalog descriptions):

- STAT 22500, STAT 31100, STAT 41600 or MA 41600
- STAT 30100, STAT 35000, STAT 50100
- STAT 50300 and STAT 51100.

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