Departmental/Program Major Courses

Required Science Education Core Courses (24-30 Credits)

Required Chemistry Selective Courses (4-5 credits):
- (4-5) 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 CHED, ESSE, PHED Concentration Requirement)*
  - OR
- (5) CHM 12901 General Chemistry With A Biological Focus *(satisfies BIED Concentration Requirement)*

Required Computing Option (3-4 credits):
- (3-4) CS 15800 C Programming or CS 17700 Programming With Multimedia Objects *(satisfies CHED Concentration requirement)*
  - OR
- (3-4) 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)*
  - OR
- (3-4) CS 17700 Programming With Multimedia Objects *(satisfies ESSE Concentration requirement)*

Required Calculus Selective Courses (6-10 credits):
- (3) MA 16010 Applied Calculus I *(satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)*
- (3) MA 16020 Applied Calculus II *(satisfies Quantitative Reasoning for core/satisfies BIED Concentration only)*
  - OR
- (4-5) MA 16100 Plane Analytic Geometry And Calculus I or MA 16500 Analytic Geometry And Calculus I *(satisfies Quantitative Reasoning for core and BIED, CHED, ESSE, PHED Concentration requirement)*
  - OR
- (4-5) MA 16200 Plane Analytic Geometry And Calculus II or MA 16600 Analytic Geometry And Calculus II *(satisfies Quantitative Reasoning for core and (satisfies Quantitative Reasoning for core and BIED, CHED, ESSE, PHED Concentration requirement)*

Required Physics Selective Courses (8 credits):
- (4) PHYS 17200 Modern Mechanics *(satisfies Science Selective for core/BIED, CHED, ESSE, PHED Concentrations)*
- (4) PHYS 27200 Electric and Magnetic Interactions or PHYS 24100 Electricity and Optics AND PHYS 25200 Electricity and Optics Laboratory *(satisfies Science Selective for core/BIED, CHED, ESSE, PHED Concentrations)*

Required Statistics Selective Courses (3 credits):
- (3) STAT 30100 Elementary Statistical Methods *(satisfies CHED, ESSE, PHED Concentrations)*
  - OR
- (3) 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-
- (3) EDCI 27000 Introduction To Educational Technology And Computing
- (3) EDCI 20500 Exploring Teaching As A Career
- (3) EDCI 28500 Multiculturalism And Education *(satisfies Behavior/Social Science for University Core) (satisfies Language III/Culture/Diversity Option)*
  - OR
- (3) EDPS 23500 Learning And Motivation *(satisfies Behavior/Social Science for University Core) (satisfies General Education III Option)*

- (3) EDPS 26500 The Inclusive Classroom *(satisfies Behavior/Social Science for University Core)*
- (3) EDST 20010 Educational Policies and Laws
- (3) EDPS 32700 Assessment Literacy
- (3) EDCI 30900 Reading in Middle and Secondary School
- (3) EDCI 42400 Physical Science In The Secondary Schools *(satisfies Multidisciplinary Experience) – for CHED, ESSE, and PHED Concentrations* OR EDCI 42100 The Teaching of Biology in Secondary School *(satisfies Multidisciplinary Experience) – for BIED*
  - OR
- (2) EDCI 42800 Teaching Science In The Middle And Junior High School
- (10) EDCI 49800 Supervised Teaching *(Meets Teambuilding and Collaboration Experience)*
Other Departmental /Program Course Requirements (30-36)

Within Major
Calculus I Option – Select from MA 16100, MA 16500 (satisfies Quantitative Reasoning for core) cc
Calculus II Option – Select from MA 16200, MA 16600 (satisfies Quantitative Reasoning for core)
(3-4) ENGL 10600 or ENGL 10800 - (satisfies Written Communication and Information Literacy for core)
(3-4) Language I Option* (Select courses COULD satisfy Human Cultures Humanities for core)
(3-4) Language II Option* (Select courses COULD satisfy Human Cultures Humanities for core)
Language III/Culture/Diversity Option* (Select courses COULD satisfy Human Cultures Humanities for core)
(3-6) Technical Writing Option and Technical Presenting Option (Select courses COULD satisfy Oral Communication for core)
Within Major
Calculus I Option (satisfies Science Selective for core)
Calculus II Option (satisfies Science Selective for core)
General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core)
General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core)
General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core)
Lab 30100 Elementary Statistical Methods
Laboratory Science I Option (satisfies Science Selective for core)
Laboratory Science II Option (satisfies Science Selective for core)
(3) General Education I Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core)
(3) General Education II Option (Select courses COULD satisfy Human Culture Behavioral/Social Science or Humanities for core)
(3) Great Issues Option
(1-3) Science, Technology and Society requirement for UCC
(4) MA 26100 (satisfies Quantitative Reasoning Selective for University Core) or MA 27101 Several Variable Calculus Honors

Within Ed Program
Teambuilding and Collaboration Experience*
(3)
Multidisciplinary Experience* (Select courses COULD satisfy Science, Technology, and Society Selective for core)
(9-10)
PHYS Major Selectives (12-13 credits)
____ (3) PHYS/ASTR ≥ 300 level
____ (3-4) PHYS 53600 Electronic Techniques for Research or 58000 Computational Physics (fall)
____ (0) Science/Engineering ≥ 300 level (met by Statistics Option)
____ (3) Science/Engineering ≥ 300 level (could be met by Great Issues Option)

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

Physics Concentration (30-31 credits) Overall GPA for Physics Concentration courses with the Departmental/Program Major Courses must be ≥ 2.5

Within Dept/Program
CHM 11500 General Chemistry or CHM 12500 Intro to Chemistry I or CHM 12300 General Chemistry For Engineers I
CHM 11600 General Chemistry or CHM 12600 Intro to Chemistry II or CHM 124 General Chemistry for Engineers II or
CHM 13600 General Chemistry Honors
(4-5)
PHYS 17200 Modern Mechanics or 17200 Honors
PHYS 27200 Electricity and Magnetism (also satisfies Science Selective for University Core) or 27200 Honors
(3)
PHYS 30600 Mathematical Methods of Physics I (fall)
(3)
PHYS 30700 Mathematical Methods Of Physics II (spring)
(4)
PHYS 31000 Intermediate Mechanics (fall)
(3)
PHYS 33000 Intermediate Electricity and Magnetism (fall)
(1)
PHYS 34000 Modern Physics Laboratory
(4)
PHYS 34400 Modern Physics (fall)
(3)
PHYS 36000 Quantum Mechanics (spring)
(3)
PHYS 42200 Waves and Oscillation (spring)
(2)
PHYS 45000 Optics Laboratory I

University Core Requirements

| Human Cultures Humanities | ☐ | ☐ | ☐ | ☐ |
| Human Cultures Behavioral/Social Science | ☐ | ☐ | ☐ | ☐ |
| Information Literacy | ☐ | ☐ | ☐ | ☐ |
| Science Selective | ☐ | ☐ | ☐ | ☐ |
| Science Selective | ☐ | ☐ | ☐ | ☐ |

Science, Technology & Society Selective
Written Communication
Oral Communication
Quantitative Reasoning

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

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

(Degree Works) MyPurduePlan is knowledge source for specific requirements and completion

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

*******************************************************************************************************************************
Suggested Arrangement of Courses:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall 1st Year</th>
<th>Prerequisite</th>
<th>Credits</th>
<th>Spring 1st Year</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>PHYS 17200** (HONORS)</td>
<td>ALEKS 85</td>
<td>4</td>
<td>PHYS 27200** (HONORS)</td>
<td>PHYS 17200, MA 16200 coreq</td>
</tr>
<tr>
<td>4</td>
<td>CHM 11500**</td>
<td>ALEKS 75</td>
<td>4</td>
<td>CHM 11600**</td>
<td>CHM 11500</td>
</tr>
<tr>
<td>5</td>
<td>MA 16100*</td>
<td>ALEKS 85</td>
<td>5</td>
<td>MA 16200*</td>
<td>MA 16100</td>
</tr>
<tr>
<td>4</td>
<td>ENGL 10600*</td>
<td></td>
<td>3-4</td>
<td>Language I Option*</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>17</td>
<td></td>
<td>16-17</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall 2nd Year</th>
<th>Prerequisite</th>
<th>Credits</th>
<th>Spring 2nd Year</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>PHYS 30600^ Fall only</td>
<td>PHYS 27200, MA 26100 coreq</td>
<td>3</td>
<td>PHYS 30700* Spring only</td>
<td>PHYS 27200, MA 26100 coreq</td>
</tr>
<tr>
<td>1</td>
<td>PHYS 34000^</td>
<td>Phys 34400 coreq</td>
<td>3</td>
<td>PHYS 42200^ Spring only</td>
<td>PHYS 27200</td>
</tr>
<tr>
<td>4</td>
<td>PHYS 34400^ Fall only</td>
<td>PHYS 27200, MA 26100 coreq</td>
<td>3</td>
<td>STAT 30100* (Sci,Engr Selective)</td>
<td></td>
</tr>
<tr>
<td>4-5</td>
<td>MA 26100* MA 16200</td>
<td>3</td>
<td>EDCI 20500</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Language II Option Language I Option</td>
<td>3</td>
<td>EDCI 28500* (Language III/Culture/Diversity Option)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>EDCI 27000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15-16</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall 3rd Year</th>
<th>Prerequisite</th>
<th>Credits</th>
<th>Spring 3rd Year</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>PHYS 31000^ Fall only</td>
<td>PHYS 27200, MA 26100</td>
<td>3</td>
<td>PHYS 36000^ Spring only</td>
<td>(PHYS 31000 or33000), PHYS 34400</td>
</tr>
<tr>
<td>3</td>
<td>PHYS 33000^ Fall only</td>
<td>PHYS 27200, MA 26100</td>
<td>4-3</td>
<td>PHYS 53600 (or PHYS 58000) Spring only</td>
<td>PHYS 27200 (or PHYS 34400, 31000)</td>
</tr>
<tr>
<td>2</td>
<td>PHYS 45000^</td>
<td>PHYS 42200</td>
<td>3</td>
<td>COM 21700*</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>EDCP 23500* (General Education I Option)</td>
<td>EDCI 20500,28500 (C- or better)</td>
<td>3</td>
<td>General Education III Option</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>EDCS 26500</td>
<td>EDCI 20500,28500 (C- or better)</td>
<td>1-3</td>
<td>Science, Technology, and Society</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>General Education II Option</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>18</td>
<td>13-16</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall 4th Year</th>
<th>Prerequisite</th>
<th>Credits</th>
<th>Spring 4th Year</th>
<th>Prerequisite</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>PHYS,ASTR ≥ 300 level</td>
<td>Varies</td>
<td>2</td>
<td>EDCI 42800 Spring only</td>
<td>EDCI 20500,28500 AND EDCS 23500, 26500 (C- or better) AND EDCI 42400</td>
</tr>
<tr>
<td>3</td>
<td>EDCI 42400 (Multidisciplinary Experience)</td>
<td>EDCI 20500,28500 AND EDCS 23500, 26500 (C- or better)</td>
<td>3</td>
<td>EDCI 30900</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Great Issues Option (Sci, Engr selective)</td>
<td>Varies</td>
<td>10</td>
<td>EDCI 49800 (Teambuilding and Collaboration Experience)</td>
<td>EDCI 20500,28500 AND EDCS 23500, 26500 (C- or better)</td>
</tr>
<tr>
<td>3-4</td>
<td>CS Option</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>EDST 20010 Educ Policies &amp; Law</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>EDCS 32700 Assessment Literacy</td>
<td>EDPS 23500</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15-16</td>
<td>15</td>
<td></td>
</tr>
</tbody>
</table>

*Satisfies a University Core Requirement

127 semester credits required for Bachelor of Science degree.
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-)

************************************************************************************************************
The student is ultimately responsible for knowing and completing all degree requirements.
Degree Works is knowledge source for specific requirements and completion
************************************************************************************************************