

MAJOR IN PHYSICS, APPLIED PHYSICS CONCENTRATION

Required PH courses above the 100-Level are typically offered only Fall or Spring, not both. A grade of C- or better is required in all courses used to meet requirements of the major, except for unrestricted electives and courses taken to satisfy All-University Core Curriculum (AUCC) categories 1A, 1C, 3B, 3C, and 3D. Courses in a Selected Field list have additional prerequisites. Any student considering the Applied Physics concentration should meet with an advisor as soon as possible.

Major Completion Map

Distinctive Requirements for Degree Program:

Freshman

| Semester 1 | | Critical | Recommended | AUCC | Credits |
|--|---|----------|-------------|------|---------|
| CO 150 | College Composition (GT-CO2) | | X | 1A | 3 |
| MATH 160 | Calculus for Physical Scientists I (GT-MA1) | | X | 1B | 4 |
| PH 141 | Physics for Scientists and Engineers I (GT-SC1) | | X | 3A | 5 |
| PH 193 | Introductory Seminar in Physics | X | | | 1 |
| 1C (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#aucc) | | | | 1C | 3 |

Total Credits

16

| Semester 2 | | Critical | Recommended | AUCC | Credits |
|---|--|----------|-------------|------|---------|
| Select one group from the following: | | X | | | 3-5 |
| Group A: | | | | | |
| CS 150B | Culture and Coding: Python (GT-AH3) | | | 3B | |
| Electives | | | | | |
| Group B: | | | | | |
| CS 152 | Python for STEM | | | | |
| Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities) | | | | 3B | |
| MATH 161 | Calculus for Physical Scientists II (GT-MA1) | | X | 1B | 4 |
| PH 142 | Physics for Scientists and Engineers II (GT-SC1) | | X | 3A | 5 |
| CO 150, MATH 160, and PH 141 must be completed by the end of Semester 2. | | X | | | |

Total Credits

14

Sophomore

| Semester 3 | | Critical | Recommended | AUCC | Credits |
|---|--------------------------------------|----------|-------------|------|---------|
| MATH 261 | Calculus for Physical Scientists III | X | | | 4 |
| PH 210 | Introduction to Computing in Physics | X | | | 3 |
| PH 245 | Introduction to Electronics | X | | | 3 |
| PH 293 | Selected Topics in Physics | X | | | 1 |
| Historical Perspectives (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#historical-perspectives) | | | X | 3D | 3 |
| MATH 161 and PH 142 must be completed by the end of Semester 3. | | X | | | |

Total Credits

14

| Semester 4 | | Critical | Recommended | AUCC | Credits |
|--|--|----------|-------------|------|---------|
| Select one course from the following: | | | | | 4 |
| MATH 340 | Intro to Ordinary Differential Equations | | X | | |
| MATH 345 | Differential Equations | | | | |
| PH 314 | Introduction to Modern Physics | | X | | 4 |
| PH 315 | Modern Physics Laboratory | | X | | 2 |
| Arts and Humanities (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#arts-humanities) | | | | 3B | 3 |
| Social and Behavioral Sciences (https://catalog.colostate.edu/general-catalog/all-university-core-curriculum/aucc/#social-behavioral-sciences) | | | | 3C | 3 |
| MATH 261 must be completed by the end of Semester 4. | | X | | | |

Total Credits

16

| <i>Junior</i> | | | | | |
|--|---|-----------------|--------------------|-------------|----------------|
| Semester 5 | | Critical | Recommended | AUCC | Credits |
| MATH 369 | Linear Algebra I | X | | | 3 |
| PH 341 | Mechanics | X | | | 4 |
| PH 353 | Optics and Waves | X | | | 4 |
| Technical Elective (see list on Concentration Requirements tab) | | | X | | 3 |
| MATH 340 and PH 245 must be completed by the end of Semester 5. | | X | | | |
| Total Credits | | | | | 14 |
| Semester 6 | | Critical | Recommended | AUCC | Credits |
| PH 351 | Electricity and Magnetism | | X | | 4 |
| PH 361 | Physical Thermodynamics | X | | | 3 |
| Select one course from the following: | | | | | 3 |
| CHEM 301 | Advanced Scientific Writing--Chemistry (GT-CO3) | | | 2 | |
| CO 300 | Writing Arguments (GT-CO3) | | | 2 | |
| CO 301B | Writing in the Disciplines: Sciences (GT-CO3) | | | 2 | |
| JTC 300 | Strategic Writing and Communication (GT-CO3) | | | 2 | |
| LB 300 | Specialized Professional Writing | | | 2 | |
| Electives | | | | | 6 |
| PH 293, PH 314, and PH 315 must be completed by the end of Semester 6. | | X | | | |
| Total Credits | | | | | 16 |
| <i>Senior</i> | | | | | |
| Semester 7 | | Critical | Recommended | AUCC | Credits |
| PH 451 | Introductory Quantum Mechanics I | X | | 4A,4B | 3 |
| Selected Field (See Lists on Concentration Requirements Tab) | | | | | 6 |
| Electives | | | | | 6 |
| PH 341 and PH 353 must be completed by the end of Semester 7. | | X | | | |
| Total Credits | | | | | 15 |
| Semester 8 | | Critical | Recommended | AUCC | Credits |
| PH 425 | Advanced Physics Laboratory | X | | 4C | 2 |
| PH 492 | Seminar | X | | 4C | 1 |
| Selected Field (See Lists on Concentration Requirements Tab) | | X | | | 6 |
| Electives | | X | | | 6 |
| The benchmark courses for the 8th semester are the remaining courses in the entire program of study. | | X | | | |
| Total Credits | | | | | 15 |
| Program Total Credits: | | | | | 120 |