B.S., PHYSICS

Minimum Requirements for Degree: 120 credits

Students must earn a C- grade or better in each course.

General University Requirements
Complete the general university requirements. (http://catalog.uaf.edu/bachelors)

General Education Requirements
Complete the general education requirements. (http://catalog.uaf.edu/bachelors/general-education-requirements)
As part of the general education requirements, complete:
- MATH F251X Calculus I

B.S. Degree Requirements
Complete the B.S. degree requirements. (http://catalog.uaf.edu/bachelors/summary-of-bachelors-degree-reqs/#bachelorofsciencetext)
As part of the B.S. degree requirements, complete:
- MATH F252X Calculus II
- PHYS F211X General Physics I
- PHYS F212X General Physics II

Program Requirements
MATH F253X Calculus III 4
PHYS F213X Elementary Modern Physics 4
PHYS F220 Introduction to Computational Physics 4
PHYS F301 Introduction to Mathematical Physics 4
PHYS F341 Classical Physics I: Particle Mechanics 4
PHYS F342 Classical Physics II: Electricity and Magnetism 4
PHYS F400 Capstone Project 1

Select 6 credits from the following:
- PHYS F451 Statistical Physics 2
- PHYS F343 Classical Physics III: Vibration and Waves 4
- PHYS F381 Physics Laboratory 3
- PHYS F421 Quantum Mechanics 4
- PHYS F462 Geometrical and Physical Optics 4

Concentrations

Complete one from the following concentrations: 31-40
- Physics
- Applied Physics
- Atmospheric Physics
- Computational Physics
- Technical Management

Total Credits 55-64

1 Satisfy the capstone project requirement by passing PHYS F400, Capstone Project (0 credits).
   The capstone project can be done either as individual undergraduate research with a faculty member (by taking PHYS F488 - 2 credits)
   or as an independent study with a faculty member within any F300-
   or F400-level physics course (by taking PHYS F497 - 2 credits), or
   as participation in the international University Physics Competition. Credits required to fulfill the capstone experience do not count
   toward credits required to complete the concentration.

Concentrations

PHYSICS

Program Requirements
- MATH electives at the F300 level or above 1 6
- PHYS F351 Thermal Physics 2

Total Credits 31
Recommended courses include MATH F314, MATH F421 and MATH F422.

**APPLIED PHYSICS**

**Program Requirements**

- MATH electives at the F300 level or above: 6
- Physics credits at the F300 level or above: 9
- Applied physics: 17
- Total Credits: 32

The credits must be in a chosen subject area and approved before the beginning of the student's final semester by the head of the Physics Department.

**ATMOSPHERIC PHYSICS**

**Program Requirements**

- MATH electives at the F300 level or above: 6
- Physics credits at the F300 level or above: 9
- ATM F401 Introduction to Atmospheric Sciences: 3
- ATM F413 Atmospheric Radiation: 3
- ATM F445 Atmospheric Dynamics: 3
- Other relevant upper-division courses: 8
- Total Credits: 32

Recommended courses include MATH F314, MATH F421 and MATH F422.

**COMPUTATIONAL PHYSICS**

**Program Requirements**

- MATH electives at the F300 level or above: 6
- Physics credits at the F300 level or above: 9
- MATH F310 Numerical Analysis: 3
- CS F201 Computer Science I: 3
- CS F202 Computer Science II: 3
- Other relevant upper-division courses: 8
- Total Credits: 32

Recommended courses include MATH F314, MATH F421 and MATH F422.

**TECHNICAL MANAGEMENT**

**Program Requirements**

- MATH electives at the F300 level or above: 3
- STAT F200X Elementary Probability and Statistics: 3
- Physics credits at the F300 level or above: 12
- ACCT F261X Principles of Financial Accounting: 3
- ACCT F262 Principles of Managerial Accounting: 3
- Total Credits: 32

Recommended courses include MATH F314, MATH F421 and MATH F422.

**School of Management Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BA F325</td>
<td>Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F330</td>
<td>The Legal Environment of Business</td>
<td>4</td>
</tr>
<tr>
<td>BA F343</td>
<td>Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>BA F360</td>
<td>Operations Management</td>
<td>3</td>
</tr>
<tr>
<td>BA F390</td>
<td>Organizational Theory and Behavior</td>
<td>3</td>
</tr>
</tbody>
</table>
- Total Credits: 40

Recommended courses include MATH F314, MATH F421 and MATH F422.

Students must take ACCT F261X, MATH F253X and PHYS F220 before taking these courses; or have permission of the MBA director. The School of Management agrees that such students will be allowed to register for these courses.

Students can be required to earn a B grade or higher if applying for the MBA program.

**Requirements for physics teachers (grades 7-12)**

Students must earn a C- grade or better in each course.

**Program Requirements**

- Complete all the requirements of the B.S. degree
- All prospective physics teachers must complete the following:
  - CHEM F105X General Chemistry I: 8
  - and CHEM F106X and General Chemistry II: 8
  - PHYS F211X General Physics I: 4
  - PHYS F212X General Physics II: 4
  - PHYS F213X Elementary Modern Physics: 4
  - PHYS F220 Introduction to Computational Physics: 4
  - PHYS F301 Introduction to Mathematical Physics: 4
  - MATH electives: 3
  - Physics-approved electives: 16
- All prospective science teachers must complete the following:
  - PHIL F481 Philosophy of Science: 3

**Note:** We strongly recommend that prospective secondary science teachers seek advising from the UAF School of Education early in your undergraduate degree program, so that you can be appropriately advised of the State of Alaska requirements for teacher licensure. Apply for admission to the UAF School of Education's postbaccalaureate teacher preparation program, a one-year intensive program, during your senior year.