

## Current Catalog

### PHYSICS MAJOR, BA, BS DEGREE

A. General Education Core Requirement/38 credits  
Physics Majors completing PHYS 202 are exempt from the General Education Goal 6 Requirement.

B. Additional Degree Requirements for BA Degree/6 credits  
Additional Degree Requirements for BS Degree/8 credits  
MATH 261 The Differential and Integral Calculus/4 credits  
CHEM 111 Fundamentals of Chemistry I/4 credits

C. Major Requirements/44 credits  
CHEM 111 Fundamentals of Chemistry I/4 credits  
(satisfied by Additional Degree Requirements)  
MATH 262 The Differential and Integral Calculus/4 credits  
MATH 361 Calculus III/4 credits  
MATH 362 Differential Equations/3 credits  
PHYS 202 University Physics II/4 credits \*\*  
PHYS 260 Introduction to Experimental Design/2 credits  
PHYS 321 Modern Physics/3 credits  
PHYS 324 Thermodynamics/3 credits  
PHYS 331 AC/DC Circuits/4 credits  
PHYS 332 Classical Electricity and Magnetism/3 credits  
PHYS 352 Mechanics/3 credits  
PHYS 401 Quantum Mechanics/3 credits  
PHYS 460 Advanced Experimental Design/2 credits  
Physics Elective/6 credits\*\*PHYS

201 is a prerequisite to PHYS202.

Recommended elective for all physics majors: CMSC 160

Introduction to Algorithmic Design I/4 credits

D. General electives for non-teaching majors/30-32credits

E. Secondary Teaching Endorsement, Grades 6-12/43 credits  
BIOL 121 The Unity of Life/4 credits  
EASC 300 The Dynamic Planet/3 credits  
EDUC 245 Human Growth and Development/3 credits  
EDUC 260 Introduction to the Teaching Profession/2 credits  
EDUC 370 Practicum II/3 credits  
EDUC 432 Content Area Literacy/3 credits  
EDUC 455 Principles of Secondary Education/1 credit  
EDUC 473 Inquiry into the Classroom Community/3 credits  
EDUC 487 Classroom Management and System Issues /3 credits  
SPED 489 Survey of Exceptional Children/3 credits  
SCED 352 Science for Secondary Teachers/3 credits  
(see page 105 for SCED course descriptions)  
SCED 482 Directed Teaching in the Secondary School/12 credits  
(see page 105 for SCED course descriptions)

\* For additional endorsement to teach Biology Minor in Biology/24 credits.

\* For additional endorsement to teach Chemistry Minor in Chemistry/24 credits.

- \* Students seeking an endorsement in these areas must meet criteria established by the State Department of Education.

- F. Total credits required for BS/BA in Physics/120  
Total credits required for BA in Physics with Secondary Teaching Endorsement/131  
Total credits required for BS in Physics with Secondary Teaching Endorsement/133

### **PHYSICS MAJOR, BA or BS DEGREE**

#### **Dual-Degree Engineering Concentration**

##### **A. General Education Core Requirement/38 credits**

Physics Majors completing PHYS 202 are exempt from the General Education Goal 6 Requirement.

##### **B. Additional Degree Requirements for BA Degree/6 credits**

##### **Additional Degree Requirements for BS Degree/8 credits**

MATH 261 The Differential and Integral Calculus/4 credits

CHEM 111 Fundamentals of Chemistry I/4 credits

##### **C. Major Requirements/50 credits**

CHEM 111 Fundamentals of Chemistry I/4 credits

(satisfies additional degree requirement)

CHEM 112 Fundamentals of Chemistry II/4 credits

MATH 262 The Differential and Integral Calculus/4 credits

MATH 361 Calculus III/4 credits

MATH 362 Differential Equations/3 credits

PHYS 202\*\* University Physics II/4 credits

PHYS 260 Introduction to Experimental Design/2 credits

PHYS 321 Modern Physics/3 credits

PHYS 324 Thermodynamics/3 credits

PHYS 331 AC/DC Circuits/4 credits

PHYS 332 Classical Electricity and Magnetism/3 credits

PHYS 352 Mechanics/3 credits

Physics Elective/6 credits

Engineering Electives/7 credits – fulfilled at transfer institution

\*\*PHYS 201 is a prerequisite for PHYS 202.

Recommended elective for all physics majors: CMSC 160 Introduction to Algorithmic Design I/4 credits.

##### **D. General electives/24-26 credits**

##### **E. Total credits required for BS/BA in Physics/120**

### **PHYSICS MAJOR, BS or BA DEGREE**

#### **Biophysics Concentration**

##### **A. General Education Core Requirement/38 credits**

Physics majors with concentrations in Biophysics completing PHYS 202 are exempt from the General Education Goal 6 Requirement.

##### **B. Additional Degree Requirements for BA degree /6 credits**

##### **BS Degree Additional Degree Requirements/8 credits**

MATH 261 The Differential and Integral Calculus/4 credits

CHEM 111 Fundamentals of Chemistry I/4 credits

### C. Major Requirements/74-75 credits

BIOL 121 The Unity of Life/4 credits  
BIOL 122 The Diversity of Life/4 credits  
BIOL 206 Human Anatomy and Physiology I/4 credits  
BIOL 207 Human Anatomy and Physiology II/4 credits  
BIOL 304 Microbiology/5 credits  
*or* BIOL 412 Biochemistry/4 credits  
BIOL 324 Genetics/4 credits  
CHEM 111 Fundamentals of Chemistry I/4 credits  
(satisfied by Additional Degree requirements)  
CHEM 112 Fundamentals of Chemistry II/4 credits  
CHEM 305 Organic Chemistry I/3 credits  
CHEM 306 Organic Chemistry II/3 credits  
CHEM 307 Organic Chemistry Laboratory I/1 credit  
CHEM 308 Organic Chemistry Laboratory II/1 credit  
MATH 262 The Differential and Integral Calculus/4 credits  
MATH 361 Calculus III/4 credits  
MATH 362 Differential Equations/3 credits  
PHYS 202\*\* University Physics II/4 credits  
PHYS 260 Introduction to Experimental Design/2 credits  
PHYS 321 Modern Physics/3 credits  
PHYS 324 Thermodynamics/3 credits  
PHYS 331 AC/DC Circuits/4 credits  
PHYS 332 Classical Electricity and Magnetism/3 credits  
PHYS 352 Mechanics/3 credits  
PHYS 401 Quantum Mechanics/3 credits  
PHYS 460 Advanced Experimental Design/2 credits  
\*\*PHYS 201 is a prerequisite to PHYS 202.  
*Recommended elective for all physics majors:*  
CMSC 160 Introduction to Algorithmic Design I/4 credits.

### D. General Electives/0-2

### E. Total credits required for a BA in Physics with Pre-Medicine or Biophysics Concentration/120

## Proposed Catalog Copy

### PHYSICS MAJOR, BA, BS DEGREE

- A. General Education Core Requirement/~~38~~ **30-31 credits**  
~~Physics Majors completing PHYS 202 are exempt from the General Education Goal-6 Requirement.~~  
**Completion of MATH 261 waives General Education Goal 5.**  
**Completion of PHYS 202 waives General Education Goal 6.**  
**SCED 490 waives General Education Goal 14 for Teacher Preparation in Physics Concentration.**
- B. Additional Degree Requirements for BA Degree/6 credits  
Additional Degree Requirements for BS Degree/8 credits  
~~MATH 261 — The Differential and Integral Calculus/4 credits~~  
~~CHEM 111 — Fundamentals of Chemistry I/4 credits~~  
**MATH 262 — Differential and Integral Calculus II/4 credits**

**PHYS 201 University Physics I/4credits**

**C. PHYSICS MAJORS MUST CHOOSE ONE OF THE FOLLOWING CONCENTRATIONS:**

**General Physics Concentration/44 48 credits**

CHEM 111	Fundamentals of Chemistry I/4 credits (satisfied by Additional Degree Requirements)
<b>MATH 261</b>	<b>Differential and Integral Calculus/4 credits</b>
<del>MATH 262</del>	<del>The Differential and Integral Calculus/4 credits</del>
MATH 361	Calculus III/4 credits
MATH 362	Differential Equations/3 credits
PHYS 202	University Physics II/4 credits **
PHYS 260	Introduction to Experimental Design/2 credits
PHYS 321	Modern Physics/3 credits
PHYS 324	Thermodynamics/3 credits
PHYS 331	AC/DC Circuits/4 credits
PHYS 332	Classical Electricity and Magnetism/3 credits
PHYS 352	Mechanics/3 credits
PHYS 401	Quantum Mechanics/3 credits
PHYS 460	Advanced Experimental Design/2 credits
	Physics Elective (at the 200 level or above) /6 credits

~~\*\*PHYS 201 is a prerequisite to PHYS202.~~

~~Recommended elective for all physics majors: CMSC 160~~

~~Introduction to Algorithmic Design I/4 credits~~

**Dual-Degree Engineering Concentration/50 54 credits**

CHEM 111	Fundamentals of Chemistry I/4 credits (satisfies additional degree requirement)
CHEM 112	Fundamentals of Chemistry II/4 credits
<b>MATH 261</b>	<b>Differential and Integral Calculus/4 credits</b>
<del>MATH 262</del>	<del>The Differential and Integral Calculus/4 credits</del>
MATH 361	Calculus III/4 credits
MATH 362	Differential Equations/3 credits
PHYS 202**	University Physics II/4 credits
PHYS 260	Introduction to Experimental Design/2 credits
PHYS 321	Modern Physics/3 credits
PHYS 324	Thermodynamics/3 credits
PHYS 331	AC/DC Circuits/4 credits
PHYS 332	Classical Electricity and Magnetism/3 credits
PHYS 352	Mechanics/3 credits
	Physics Elective (at the 200 level or above)/6 credits
	Engineering Electives/7 credits – fulfilled at transfer institution

**Biophysics Concentration/74-75 78-79 credits**

BIOL 121	The Unity of Life/4 credits
BIOL 122	The Diversity of Life/4 credits
BIOL 206	Human Anatomy and Physiology I/4 credits
BIOL 207	Human Anatomy and Physiology II/4 credits
BIOL 304	Microbiology/5 credits
or BIOL 412	Biochemistry/4 credits
BIOL 324	Genetics/4 credits
CHEM 111	Fundamentals of Chemistry I/4 credits (satisfied by Additional Degree requirements)
CHEM 112	Fundamentals of Chemistry II/4 credits

CHEM 305	Organic Chemistry I/3 credits
CHEM 306	Organic Chemistry II/3 credits
CHEM 307	Organic Chemistry Laboratory I/1 credit
CHEM 308	Organic Chemistry Laboratory II/1 credit
<b>MATH 261</b>	<b>Differential and Integral Calculus/4 credits</b>
<del>MATH 262</del>	<del>The Differential and Integral Calculus/4 credits</del>
MATH 361	Calculus III/4 credits
MATH 362	Differential Equations/3 credits
PHYS 202**	University Physics II/4 credits
PHYS 260	Introduction to Experimental Design/2 credits
PHYS 321	Modern Physics/3 credits
PHYS 324	Thermodynamics/3 credits
PHYS 331	AC/DC Circuits/4 credits
PHYS 332	Classical Electricity and Magnetism/3 credits
PHYS 352	Mechanics/3 credits
PHYS 401	Quantum Mechanics/3 credits
PHYS 460	Advanced Experimental Design/2 credits

**Teacher Preparation in Physics Concentration/84 credits**

CHEM 111	Fundamentals of Chemistry I/4 credits (satisfied by Additional Degree Requirements)
<b>MATH 261</b>	<b>Differential and Integral Calculus/4 credits</b>
<del>MATH 262</del>	<del>The Differential and Integral Calculus/4 credits</del>
MATH 361	Calculus III/4 credits
MATH 362	Differential Equations/3 credits
PHYS 202	University Physics II/4 credits **
PHYS 260	Introduction to Experimental Design/2 credits
PHYS 321	Modern Physics/3 credits
PHYS 324	Thermodynamics/3 credits
PHYS 331	AC/DC Circuits/4 credits
PHYS 332	Classical Electricity and Magnetism/3 credits
PHYS 352	Mechanics/3 credits
<del>PHYS 401</del>	<del>Quantum Mechanics/3 credits</del>
<del>PHYS 460</del>	<del>Advanced Experimental Design/2 credits</del>
Physics Elective (at the 200 level or above)/6 credits	
BIOL 121	The Unity of Life/4 credits
EASC 300	Dynamic Planet/3 credits
EDUC 245	Human Growth and Development/3 credits
EDUC 260	Introduction to the Teaching Profession/2 credits
<del>EDUC 370</del>	<del>Practicum II/3 credits</del>
EDUC 432	Content Area Literacy/3 credits
<del>EDUC 455</del>	<del>Principles of Secondary Education/1 credit</del>
EDUC 473	Inquiry into the Classroom Community/3 credits
EDUC 487	Classroom Management & Systems/3 credits
<b>SCED 152</b>	<b>Principles of Secondary Education in Science /1 credit</b>
<b>SCED 252</b>	<b>Practicum in Science Education/2 credits</b>
<del>SCED 352</del>	<del>Science for Secondary Teachers/3 credits</del>
<b>SCED 451</b>	<b>The Teaching of Secondary Science/2 credits</b>
SCED 482	Directed Teaching in the Secondary School/12 9 credits
<b>SCED 490</b>	<b>Research Methods Science Education/3 credits</b>
SPED 489	Survey of Exceptional Children/3 credit

- D. General electives for non-teaching majors/30-32 credits  
**General Physics Concentration 33-35 credits**

***Dual-Degree Engineering Concentration 27-29 credits***  
***Biophysics Concentration 3-6 credits***  
***Teacher Preparation in Physics Concentration 0 credits***

- E. ~~Secondary Teaching Endorsement, Grades 6-12/43 credits~~  
~~BIOL 121 — The Unity of Life/4 credits~~  
~~EASC 300 — The Dynamic Planet/3 credits~~  
~~EDUC 245 — Human Growth and Development/3 credits~~  
~~EDUC 260 — Introduction to the Teaching Profession/2 credits~~  
~~EDUC 370 — Practicum II/3 credits~~  
~~EDUC 432 — Content Area Literacy/3 credits~~  
~~EDUC 455 — Principles of Secondary Education/1 credit~~  
~~EDUC 473 — Inquiry into the Classroom Community/3 credits~~  
~~EDUC 487 — Classroom Management and System Issues /3 credits~~  
~~SPED 489 — Survey of Exceptional Children/3 credits~~  
~~SCED 352 — Science for Secondary Teachers/3 credits~~  
~~(see page 105 for SCED course descriptions)~~  
~~SCED 482 — Directed Teaching in the Secondary School/12 credits~~  
~~(see page 105 for SCED course descriptions)~~

~~\* — For additional endorsement to teach Biology Minor in Biology/24 credits.~~

~~\* — For additional endorsement to teach Chemistry Minor in Chemistry/24 credits.~~

~~\* — Students seeking an endorsement in these areas must meet criteria established by the State Department of Education.~~

- F. Total credits required BA/BS  
***General Physics Concentration 120 credits***  
***Dual-Degree Engineering Concentration 120 credits***  
***Biophysics Concentration 120 credits***  
***Teacher Preparation in Physics Concentration 120-122 credits***