BACHELOR OF SCIENCE DEGREE
PHYSICS

(1) UNIVERSITY REQUIREMENTS

**Writing Requirement**

English/Writing (WRA):

Four semester credits equivalent to MSU’s Writing, Rhetoric and American Cultures course
Writing: Science and Technology (WRA 110)

**Integrative Studies**

**ISS**
ISS 200-level course (4 credits)
ISS 300-level course (4 credits)

**IAH**
IAH 201-210 (4 credits)
IAH 211-241 (4 credits)

**Mathematics**

Four semester credits equivalent to one of the following MSU courses: MTH 110, MTH 116, MTH 124, MTH 132

Minimum number of credits required 120
Minimum cumulative and major GPA 2.0

(2) COLLEGE OF NATURAL SCIENCE REQUIREMENTS

**Biological Science**

Complete one of the following courses:
BS 161, BS 162, ENT 205, PSL 250, MMG 205, PLB 105, ZOL 141 or MMG 141

**Chemistry**

Complete one sequence from the following:
CEM 141, CEM 142, CEM 161
CEM 151, CEM 152, CEM 161
CEM 181H, CEM 182H, CEM 185H

**Mathematics**

MTH 132 (Calculus 1)*
MTH 133 (Calculus 2)*

**Physics**

PHY 183 (Physics for Scientists & Engineers –1)*
PHY 184 (Physics for Scientists & Engineers –2)*
-OR-
PHY 193H (Honors Physics-1 Mechanics)*
PHY 294H (Honors Physics-2 Electromagnetism)*

*Physics and Mathematics courses also meet graduation requirements for major.
(3) MAJOR REQUIREMENTS

**Complete all of the following physics courses:**

- PHY 191 (Physics Laboratory for Scientists -1)
- PHY 192 (Physics Laboratory for Scientists -2)
- PHY 215 (Thermodynamics and Modern Physics)
- PHY 321 (Classical Mechanics -1)
- PHY 410 (Thermal and Statistical Physics)
- PHY 431 (Optics) -or- PHY 440 (Electronics)
- PHY 451 (Advanced Laboratory)
- PHY 471 (Quantum Physics -1)
- PHY 481 (Electricity and Magnetism -1)

**Complete all of the following mathematics courses:**

- MTH 234 (Multivariable Calculus)
- MTH 235 (Differential Equations)
- MTH 3XX (Math course 300-level or higher)*
- * MTH 3XX (Math course 300-level or higher)*
- * PHY 415 (Methods of Theoretical Physics) is a valid substitution for 1 300-level math course

**Complete one sequence for Tier II requirement:**

*Sequence 1: Two of the following*
- PHY 491 (Intro to Condensed Matter Physics)
- PHY 492 (Intro to Nuclear Physics)
- PHY 493 (Intro to Elementary Particle Physics)

*Sequence 2:*
- PHY 431 (Optics 1) or PHY 440 (Electronics)
- And PHY 451 (Advanced Laboratory)

**Complete one sequence for Capstone requirement:**

*Sequence 1: Two of the following*
- PHY 491 (Intro to Condensed Matter Physics)
- PHY 492 (Intro to Nuclear Physics)
- PHY 493 (Intro to Elementary Particle Physics)

*Sequence 2*
- PHY 490 (2 semesters – Senior Thesis)

**IMPORTANT:** These guidelines are presented for planning purposes only. Students MUST consult a department advisor for confirmation of major requirements.

To make an appointment with the academic advisor please follow the instructions at [http://www.pa.msu.edu/academics/undergraduate-program/academic-advising](http://www.pa.msu.edu/academics/undergraduate-program/academic-advising)

For additional information, please contact: Jennifer Millar ([millar@pa.msu.edu](mailto:millar@pa.msu.edu) or 517-884-5532)