

PORTLAND STATE UNIVERSITY

DEPARTMENT OF PHYSICS

134 SRTC

503-725-3812

www.pdx.edu/physics

UNDERGRADUATE PROGRAM—BIOMEDICAL OPTION

As an undergraduate, you will take a group of core courses that will give you a general background in the subject. You will study force and motion, heat, optics, electricity, magnetism, atomic and nuclear physics, quantum mechanics, and the physical properties of materials, learning both the theoretical and the experimental aspects.

Requirements for Major. It is important that students planning to major in physics contact the Department of Physics prior to the start of their work in order that a coherent program can be planned with their assigned advisor. Students planning to transfer to PSU from community colleges or other universities are strongly advised to contact the Department of Physics well ahead of their proposed date of transfer so that a smooth transition, which avoids course duplication and untimely delays, can be accomplished. Students need to choose between the standard option, the environmental physics option, and the biomedical option. In addition to meeting the general University degree requirements, the student must meet the following minimal departmental course requirements:

Required physics courses:

PH 201, 202, 203 General Physics or Ph 211, 212, 213 General Physics with Calculus	12
PH 214, 215, 216 General Physics Lab	3
PH 311, 312 Introduction to Modern Physics	8
PH 314, 316 Experimental Physics I, III	8
PH 426 Thermodynamics and Statistical Mechanics	4
PH 321 Current Electricity	4
PH 431 Electricity and Magnetism I	4
PH 322 Computational Physics	4
TOTAL Required in physics	<u>47</u>

At least three of the following electives in physics:

PH 451 Electron Microscopy	4
PH 464 Applied Optics	4
PH 490 Biophysics	4
PH 337 Biomedical physics	4

Please see the undergraduate advisor to register for the following OHSU courses:

RTT 331 Radiation Therapy Physics I	4
RTT 430 Radiation Therapy Physics II	4
Upper division Electives in physics (minimum)	12

Required non-physics courses:

MTH 251, 252, 253, 254 Calculus	16
MTH 256 Applied Differential Equations I	4
MTH 261 Introduction to Linear Algebra	4
BI 251, 252, 253 General Biology	15
CH 334, 335, 336 Organic Chemistry	12
CH 337, 338 Organic Chemistry Lab	4
CH 221, 222, 223 General Chemistry	12
CH 227, 228, 229 General Chemistry Lab	3
TOTAL in Math, Biology, Chemistry	<u>70</u>

TOTAL Required credits 129

Other recommended courses:

PH 315 Experimental Physics II	4
PH 424 Classical Mechanics	4
PH 432 Electricity & Magnetism II	4
PH 434 Introduction to Mathematical Physics	4
CH 350 Biochemistry	4
CH 416, 417 Physical Chemistry of the Biosciences	8
BI 336 Cell Biology	4
BI 338 Introduction to Molecular Biology	4
BI 341 Introduction to Genetics	4
BI 301, 302, 303 Anatomy and Physiology	12
BI 234 Elementary Microbiology	4

Courses taken under the undifferentiated grading option (pass/no pass) are not acceptable toward fulfilling department major requirements except for those major courses offered on a pass/no pass basis only.