

Physics Major Requirements. University of Washington.

Major Requirements

Minimum 86-106 credits, including the following:

1. *Physics Core courses (37 credits):* PHYS 121, PHYS 122, PHYS 123, PHYS 224, PHYS 225, PHYS 227, PHYS 294, PHYS 321, PHYS 322, PHYS 334.
2. *Mathematics Core courses (18 credits from one of the following options):*
 - a. MATH 124, MATH 125, MATH 126, and one course from
MATH 307/AMATH 351,
MATH 308/AMATH 352,
MATH 309/AMATH 353,
MATH 324, MATH 326, or AMATH 401;
 - b. MATH 134, MATH 135, MATH 136, and one course from MATH 309/AMATH 353, MATH 324, MATH 326, or AMATH 401.
3. **Students must complete one of the four options shown below: 34-51 credits**
 - a. **Comprehensive Physics Option (38-41 credits):**
 1. 20 credits from: PHYS 226; PHYS 228; PHYS 324; minimum of three courses from PHYS 323, PHYS 325, PHYS 328, PHYS 329, ASTR 321, OR ASTR 322.
 2. One additional math course from the core list (3-4 credits)
MATH 307/AMATH 351,
MATH 308/AMATH 352,
MATH 309/AMATH 353,
MATH 324, MATH 326, or AMATH 401.
 3. Advanced Laboratory (6-8 credits): Two courses from PHYS 331, PHYS 335, PHYS 431, PHYS 432, PHYS 433, PHYS 434, and **either** ASTR 480 or ASTR 481.
 4. Upper Division Lecture electives (6 credits): See advisor for approved list of electives.
 5. Undergraduate Research: 3 credits from any combination of PHYS 485, PHYS 486, PHYS 487, PHYS 494, PHYS 495, PHYS 496, PHYS 499, ASTR 481 or ASTR 499. (ASTR 481 may count as lab or research).
 - b. **Applied Physics Option (34-39 credits):**
 1. PHYS 231 and AMATH 301 (7 credits)
 2. (3-4 credits) One additional course from PHYS 226, PHYS 323, PHYS 324 OR PHYS 329
 3. (6-8 credits) Two additional mathematical courses from
PHYS 228,
MATH 307/AMATH 351,
MATH 308/AMATH 352,
MATH 309/AMATH 353,
MATH 324, MATH 326, or AMATH 401.
 4. Advanced Laboratory (6-8 credits): Two courses from PHYS 331, PHYS 335, PHYS 431, PHYS 432, PHYS 433, PHYS 434, and either ASTR 480 or ASTR 481.
 5. Electives (9 credits): See advisor for approved list of electives.
 6. Undergraduate Research: 3 credits from any combination of PHYS 485, PHYS 486, PHYS 487, PHYS 494, PHYS 495, PHYS 496, PHYS 499, ASTR 481 or ASTR 499. (ASTR 481 may count as lab or research).

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c. **Biophysics Option (51-56 credits):**

1. PHYS 228, PHYS 324, PHYS 328, PHYS 429 (14 credits).
2. (3-4 credits) One additional course from PHYS 226, PHYS 323, PHYS 325 OR PHYS 329
3. Chemistry (15 credits): CHEM 142/144/145, CHEM 152/154/155, and CHEM 162/164/165.
4. Biology (10 credits): BIOL 180 and BIOL 200.
5. Additional Chemistry and Biology (6-10 credits): Two courses from CHEM 223 or 237, CHEM 224 or 238, CHEM 428, CHEM 452 or 456, CHEM 453 or 457, BIOL 220, BIOL 340, BIOL 350, BIOL 355, BIOL 401, BIOL 427, BIOL 467, BIOC 405, or BIOC 440.
6. Undergraduate Research: 3 credits from any combination of PHYS 499, BIOC 499, BIOL 499, CHEM 499, GENOME 499, MICROM 499, NBIO 499, PBIO 499, OR BIOEN 499.

d. **Teacher Preparation Option (38-41 credits):**

1. 14 credits from:
PHYS 226; PHYS 228; PHYS 324;
one course from PHYS 323, PHYS 328, or PHYS 329.
2. Physics by Inquiry (15 credits): PHYS 407, PHYS 408, and PHYS 409.
3. One additional math course from the core list (3-4 credits):
MATH 307/AMATH 351,
MATH 308/AMATH 352,
MATH 309/AMATH 353,
MATH 324, MATH 326, or AMATH 401.
4. Advanced Laboratory (3-5 credits): One course from PHYS 331, PHYS 335, PHYS 431, PHYS 432, PHYS 433, PHYS 434, and either ASTR 480 or ASTR 481.
5. Teaching Practicum (3 credits): PHYS 499, working on a project that involves teaching.

4. At least 12 credits of the physics courses presented to satisfy requirements 1 through 3, above, shall be in physics courses numbered 300 or above taken at the UW.
5. A minimum grade of 2.0 is required in all courses applied to the major.
6. Students who plan graduate study in physics are strongly advised to pursue the comprehensive option as well as several of the following: PHYS 231, PHYS 331, PHYS 421, PHYS 422, PHYS 423, PHYS 431, PHYS 432, PHYS 433, and AMATH 401, AMATH 402, AMATH 403. Students who plan to pursue graduate biophysics or medical physics should take the biophysics option, plus at least one additional upper division math class and additional chemistry or biology classes from the list in 3.c.4.