

Common Requirements, All Tracks (52 credits)

	Courses	Topics
100-level:	Phys 121 or Phys 141	Mechanics (5)
	Phys 122 or Phys 142	Electromagnetism (5)
	Phys 123 or Phys 143	Waves, Optics & Heat (5)
	Math 124 or Math 134	Differential Calculus (5)
	Math 125 or Math 135	Integral Calculus (5)
	Math 126 or Math 136	Multivariate Calculus (5)
200-level:	Phys 224	Thermal & Statistical Physics (3)
	Phys 225	Introduction to Quantum Mechanics (3)
	Phys 227	Mathematical Methods of Physics I (4)
	Phys 294	Introduction to Research: Frontiers of Physics (1)
300-level:	Phys 321	Electromagnetism I (4)
	Phys 322	Electromagnetism II (4)
	Phys 334	Electronics Lab: Analog (3)

Comprehensive Track (addl. 41-44 credits)

	Courses	Topics
Core Physics:	Phys 226	Particles & Symmetries (3)
	Phys 228	Mathematical Methods of Physics II (4)
	Phys 324	Quantum Mechanics I (4)
More Physics, 3 courses from:	Phys 323	Electromagnetism III (4)
	Phys 325	Quantum Mechanics II (4)
	Phys 328	Statistical Physics (3)
	Phys 329	Classical Mechanics (3)
	Astr 321 *	Solar System (3)
	Astr 322 *	Our Galaxy (3)
	Astr 323 *	Extragalactic Astronomy & Cosmology (3)
More Math, 2 courses from:	Math 307 or AMath 351	Ordinary Differential Equations (3)
	Math 308 or AMath 352	Linear Algebra (3)
	Math 309 or AMath 353	Partial Differential Equations (3)
	Math 324	Vector Calculus (3)
	AMath 401	Vector Calculus & Complex Variables (4)
	Math 334 † 335 † or 336 †	Accelerated Advanced Calculus (5)
Laboratories, 2 courses from:	Phys 331	Optics Lab (3)
	Phys 335	Electronics Lab: Digital (3)
	Phys 434 or Chem 464	Computers in Data Acquisition (3)

	Phys 431	Modern Physics Lab: Condensed Matter (3)
	Phys 432	Modern Physics Lab: Atomic (3)
	Phys 433	Modern Physics Lab: Nuclear & Particle (3)
	Astr 480 or Astr 481 ‡	Astronomical Data Analysis/Acquisition (5)
Electives, 6 credits from:	Additional physics or cognate electives	
Capstone, 3 credits from:	Phys 494 , 495 or 496	Senior Seminar (1)
	Phys 485 , 486 or 487	Honors Seminar (1)
	Phys 499 or Astr 499 §	Undergraduate Research (1-6)
	Phys 481	Astronomical Observation (5)

* At most two of Astr 321, 322 and 323 may be used to satisfy this Physics requirement.

† Not currently coded into UW degree audit reporting system (DARS), see the undergraduate faculty advisor (UFA) to allow these courses to satisfy requirements.

‡ Students taking other advanced labs may petition the UFA to have them substitute for Astr 480.

§ Students receiving credit for physics-related research or independent project work in another department may petition the UFA to have it meet the capstone requirement by writing a paper describing how they applied physics to their independent project.

Applied Physics Track (addl. 37-39 credits)

	Courses	Topics
Data Acquisition & Analysis:	Phys 231	Introductory Experimental Physics (3)
	AMath 301 *	Beginning Scientific Computing (4)
More Physics, 1 course from:	Phys 226	Particles & Symmetries (3)
	Phys 323	Electromagnetism III (4)
	Phys 324	Quantum Mechanics I (4)
	Phys 328 †	Statistical Physics (3)
	Phys 329	Classical Mechanics (3)
More Math, 3 courses from:	Phys 228	Mathematical Methods of Physics II (4)
	Math 307 or AMath 351	Ordinary Differential Equations (3)
	Math 308 or AMath 352	Linear Algebra (3)
	Math 309 or AMath 353	Partial Differential Equations (3)
	Math 324	Vector Calculus (3)
	AMath 401	Vector Calculus & Complex Variables (4)
	Math 334 † 335 † or 336 †	Accelerated Advanced Calculus (5)
Laboratories, 2 courses from:	Phys 331	Optics Lab (3)
	Phys 335	Electronics Lab: Digital (3)
	Phys 434 or Chem 464	Computers in Data Acquisition (3)
	Phys 431	Modern Physics Lab: Condensed Matter (3)
	Phys 432	Modern Physics Lab: Atomic (3)
	Phys 433	Modern Physics Lab: Nuclear & Particle (3)

	Astr 480 ‡ or Astr 481	Astronomical Data Analysis/Acquisition (5)
Electives, 9 credits from:	Additional physics or cognate electives	
Capstone, 3 credits from:	Phys 494 , 495 or 496	Senior Seminar (1)
	Phys 485 , 486 or 487	Honors Seminar (1)
	Phys 499 or Astr 499 §	Undergraduate Research (1-6)
	Phys 481	Astronomical Observation (5)

* Astronomy students may substitute Astr 300 or 427 for AMath 301; contact the undergraduate faculty advisor (UFA) to have this entered into your DARS. Students may petition the UFA for other upper-division data science, computing or statistics classes to substitute for AMath 301, note however that STAT 311, CS 142, and CS 143 do **not** meet this requirement.

† Not currently coded into UW degree audit reporting system (DARS), see the UFA to allow these courses to satisfy requirements.

‡ Students taking other advanced labs may petition the UFA to have them substitute for Astr 480.

§ Students receiving credit for physics-related research or independent project work in another department may petition the UFA to have it meet the capstone requirement by writing a paper describing how they applied physics to their independent project.

Biological Physics Track (addl. 54-58 credits)

	Courses	Topics
Core Physics:	Phys 228	Mathematical Methods of Physics II (4)
	Phys 324	Quantum Mechanics I (4)
	Phys 328 *	Statistical Physics (3)
	Phys 429	Biological Physics (3)
Introductory Biology & Chemistry:	Biol 180	Evolution & Ecology (5)
	Biol 200	Cellular & Developmental Biology (5)
	Chem 142 + 152 + 162 ‡	General Chemistry (15)
More Physics, 1 course from:	Phys 226	Particles & Symmetries (3)
	Phys 323	Electromagnetism III (4)
	Phys 325	Quantum Mechanics II (4)
	Phys 329	Classical Mechanics (3)
More Math, 1 course from:	Math 307 or AMath 351	Ordinary Differential Equations (3)
	Math 308 or AMath 352	Linear Algebra (3)
	Math 309 or AMath 353	Partial Differential Equations (3)
	Math 324	Vector Calculus (3)
	AMath 401	Vector Calculus & Complex Variables (4)
	Math 334 † 335 † or 336 †	Accelerated Advanced Calculus (5)
More Biology & Chemistry, 2 courses from:	Chem 223 or 237 or 335 †	Organic Chemistry I (4)
	Chem 224 or 238 or 336 †	Organic Chemistry II (4)
	Chem 428	Biomolecular Analysis (3)

	Chem 452 or 453	Physical Chemistry for Biochemists I & II (3)
	Chem 454 †	Biomolecular Spectroscopy (3)
	Chem 455 † or 456	Physical Chemistry I & II (3)
	Biol 220	Introductory Biology (5)
	Biol 340	Genetics & Molecular Ecology (5)
	Biol 350	Foundations in Physiology (3)
	Biol 355	Foundations in Molecular Cell Biology (3)
	Biol 401	Advanced Cell Biology (3)
	Biol 427	Biomechanics (5)
	Biol 461 †	Neurobiology (3)
	Biol 467	Comparative Animal Physiology (3)
	BioC 405 or 440	Biochemistry (3-4)
Capstone, 3 credits from:	Phys 499 or BioC 499	Undergraduate Research (1-6)
	Biol 499 or Chem 499	Undergraduate Research (1-6)
	P Bio 499 or BioE 499	Undergraduate Research (1-6)
	Genome 499 or MicroM 499	Undergraduate Research (1-6)

* [Chem 457](#) plus an additional upper-division physics course may substitute for the Phys 328 requirement with permission from the undergraduate faculty advisor (UFA). Most students should not take both Phys 328 and Chem 457.

† Not currently coded into UW degree audit reporting system (DARS), see the UFA to allow these courses to satisfy requirements.

‡ [Chem 143](#) + [153](#), Accelerated General Chemistry, may substitute for Chem 142+152+162; see the UFA to allow this.

Teaching Physics Track (addl. 41-43 credits)

	Courses	Topics
Core Physics:	Phys 226	Particles & Symmetries (3)
	Phys 228	Mathematical Methods of Physics II (4)
	Phys 324	Quantum Mechanics I (4)
	Phys 407 + 408 + 409	Physics by Inquiry (15)
More Physics, 1 course from:	Phys 323	Electromagnetism III (4)
	Phys 328 *	Statistical Physics (3)
	Phys 329	Classical Mechanics (3)
More Math, 2 courses from:	Math 307 or AMath 351	Ordinary Differential Equations (3)
	Math 308 or AMath 352	Linear Algebra (3)
	Math 309 or AMath 353	Partial Differential Equations (3)
	Math 324	Vector Calculus (3)
	AMath 401	Vector Calculus & Complex Variables (4)
	Math 334 † 335 † or 336 †	Accelerated Advanced Calculus (5)

Laboratories, 1 course from:	Phys 331	Optics Lab (3)
	Phys 335	Electronics Lab: Digital (3)
	Phys 434 or Chem 464	Computers in Data Acquisition (3)
	Phys 431	Modern Physics Lab: Condensed Matter (3)
	Phys 432	Modern Physics Lab: Atomic (3)
	Phys 433	Modern Physics Lab: Nuclear & Particle (3)
	Astr 480 or Astr 481 ‡	Astronomical Data Analysis/Acquisition (5)
Capstone, 3 credits from:	Phys 401 †	Physics Pedagogy (3)
	Phys 499	Undergraduate Research (1-6)

† Not currently coded into UW degree audit reporting system (DARS), see the undergraduate faculty advisor (UFA) to allow these courses to satisfy requirements.

‡ Students taking other advanced labs may petition the UFA to have them substitute for Astr 480.