

Physics Major - General Track (BA) Checklist

Students entering before Fall, 2023

Student name: _____ SPIRE #: _____ Advisor name & date: _____

Courses needed to meet departmental graduation requirements (which must be taken for a letter grade, not Pass/Fail) are shown in **boldface**.

This checklist shows departmental requirements - it does *not* show all University, College, and Gen-Ed requirements.

Current Gen-Ed requirements are listed here: https://www.umass.edu/gened/sites/default/files/cpg_admitted_students_f2018_rev.pdf

There is a foreign-language requirement for the BA degree. More info:

<https://www.umass.edu/natural-sciences/academics/degree-requirements>

FRESHMAN COURSES					
	Course (sems. offered) pre- and co-requisites	Course title or description	Cr	Sem. taken + grade, or semester planned	Career / professional development
F1	PHYS 181 (F) co: M131	Physics I (Mechanics)	4		- Try Handshake - Write resume - Get to know at least one faculty member - Use “career development checklist”
	PHYS 185 (F)	Freshman Colloquium (recommended)	1		
	MATH 131 (F,S)	Calculus I (or higher if have M131 credit)	4		
	Other	- First-year freshman seminar - GenEd DU or DG - ENGWRT112 if available in Fall	1 4 3		
Physics 181 can usually be waived if Physics 151 has been passed at UMass or transferred from another college or university. AP credit for Physics 151 will <i>not</i> count in place of Physics 181.					
S1	PHYS 182 (S) pre: P181/P151 co: M132	Physics II (E&M)	4		- Apply for summer job/internship: start in Dec., due in Feb. - Consider on-campus research, teaching, or outreach activities. - Meet with CNS career center.
	MATH 132 (F,S) pre: M131	Calculus II (or higher if have M132 credit)	4		
	PHYS 192M (S)	Intro/Measurement w/Arduino (recommended)	1		
	Other (optional)	- Practicum (research w/ faculty) - PHYS 281 (S1 or F2 – talk to advisor) - GenEd DU or DG if not already taken - ENGWRT112 if not already taken	1-3 3 4 3		
Physics 182 can usually be waived if Physics 152 has been passed at UMass or transferred from another college or university. AP credit for Physics 152 will <i>not</i> count in place of Physics 182.					
SOPHOMORE COURSES					
Starting AY24-25 P282-P289 are replaced by P271-P277					
F2	PHYS 281 (F,S) pre: P181/P151 and M132 co: P182/P152	Computational Physics	3		- Consider on-campus research, teaching, or outreach activities. - Meet with CNS career center.
	PHYS P287 (F) pre: P181/P151 and M132	Physics III: Thermo, Waves, Optics	3		
	PHYS 289 (F) co: P287	Sophomore Physics Lab I	2		
	MATH 233 (F,S) pre: M132	Calculus III, multivariable	3		
	Other (optional)	- MATH 235 (F,S) Linear Algebra - TA, NATSCI 293A, research practicum, or indep. study	3		
S2	PHYS 282 (S) pre: PM233	Mathematical Methods of Physics Optional but should be taken if plan to take P422 or P424	3		Apply for summer job/internship: start in Dec., due in Feb.
	PHYS 284 (S) pre: P181/151, P182/P152 and M233	Physics IV: Modern Physics	3		
	PHYS 286 (S) co: P284	Sophomore Physics Lab II	2		
	Other (optional)	- MATH 235 (F,S) Linear Algebra - PHYS 392P (S) Prof. Development	3 1		

JUNIOR AND SENIOR COURSES

Advanced course requirement: Must take **one** course from following. **Note P282 is a prerequisite for P422 and for P424.**

- PHYS 421 Mechanics (F) - prereq P287
- PHYS 422 Electricity and Magnetism (S) - prereqs P182/P152, P282, and M233
- PHYS 423 Statistical Physics (S) - prereqs P284 and M233
- PHYS 424 Quantum Mechanics (F) - prereqs P282 and P284
- PHYS 531 Electronics
- PHYS 551 Biological Physics
- PHYS 553 Optics
- Other 500-level physics course if approved in advance by UPD.

Most 500-level courses are only offered in one semester (Fall or Spring), and some are not offered every year. Consult your advisor when planning your advanced course(s).

F3 & S3	PHYS 381 (F or S) pre: P284	Writing in Physics Open to junior and senior physics majors only	3		• Join on-campus research, teaching, or outreach activities. • Meet with CNS career center. • Apply for summer job/internship: start in Dec., due in Feb. • Apply for REU; applications due Jan.-Feb.
	Advanced course	From list above	3-4		
	Other	• Concentration courses, listed below • TA, or research practicum • PHYS 392P Professional Development	3-4 3 1		

F4 & S4	PHYS 440 (F or S) pre: P286, P381 highly recommended	Intermed. Lab (ILAB) Permission of instructors is always required due to limited space in ILAB	4		• Join on-campus research, teaching, or outreach activities. • Apply for jobs or graduate programs
	Other	• Concentration courses, listed below	3-4		

Concentration in an area of focus: Minimum of 18 credits.

This list of courses (and any subsequent changes) must be approved by your physics advisor.

We recommend seeking advice on course selection from advisors in other departments.

Focus or rationale for your 18-credit concentration:

Course dept/number	Course title or description and fit with your concentration	Credits	Semester taken or planned	Grade
Total Credits:				

Approval by Physics Advisor and Date: