

PHYSICS WITH TEACHER CERTIFICATION IN PHYSICAL SCIENCE (PRESCHOOL-GRADE 12) (B.S.)

Students who wish to pursue P-12 teacher certification in Physical Science must apply to and be admitted to the Teacher Education Program. Once admitted, students will be matriculated into the B.A. in Secondary Education (<http://catalog.montclair.edu/programs/secondary-education-p12-ba/>) program as a second major.

Please visit the Teacher Education Program website (<https://www.montclair.edu/center-of-pedagogy/>) for the required professional sequence of courses and other important Program requirements, guidelines, and procedures. Students are strongly advised to review the Teacher Education Program Handbook. Students majoring in physics have two teacher certification options to choose from – Physical Science or Physics – and should consult with an advisor to determine which certification program they wish to complete. Courses specific to the Physical Science teacher certification program are listed below.

120 credits of coursework is required for the baccalaureate degree with a minimum 3.0 overall GPA. Major GPA requirements differ depending on field of study. Consult the Teacher Education Program Handbook for more information.

Program Requirements Overview

Code	Title	Credits
	New Student Seminar	1
	SEEDS General Education Requirements	21-24
	Major Requirements	66-67
	Co-Major in Secondary Education	37
	Total Credits	125-129

Major Requirements

Code	Title	Credits
Physics Core		
PHYS 191	University Physics I	4
PHYS 192	University Physics II	4
PHYS 198	Introductory Physics Seminar	1
PHYS 210	Intermediate Mechanics	3
PHYS 220	Oscillations, Waves, and Optics	3
PHYS 230	Intermediate Physics Laboratory	4
PHYS 300	Junior/Senior Physics Seminar	1
PHYS 320	Statistical and Thermal Physics	3
PHYS 330	Advanced Physics Laboratory	4
PHYS 340	Electricity and Magnetism	3
PHYS 360	Modern Physics	3
Physics Electives		
	Complete 3-4 credits from the list below.	3-4
Collateral Requirements		
CSIT 104	Python Programming I	3
CHEM 120	General Chemistry I	4

CHEM 121	General Chemistry II	4
CHEM 230	Organic Chemistry I	3
CHEM 232	Experimental Organic Chemistry I	2
	Complete an additional 2 credits of CHEM courses.	2
AMAT 120	Applied Calculus A	4
or MATH 122	Calculus I	
AMAT 220	Applied Calculus B	4
or MATH 221	Calculus II	
MATH 222	Calculus III	4

Teacher Education Sequence

See requirements below.

Total Credits 66-67

Major Electives

Code	Title	Credits
PHYS 180	Astronomy for Everyone	4
PHYS 245	Fundamentals of Electronics	4
PHYS 280	Astronomy for Physicists	4
PHYS 310	Advanced Mechanics	3
PHYS 325	Computational Physics	3
PHYS 341	Electronics and Digital Circuits	4
PHYS 350	Modern Optics	4
PHYS 368	Fluid Mechanics	3
PHYS 377	Mathematical Physics	3
PHYS 380	Observational Astronomy	4
PHYS 399	Special Topics in Physics	1-4
PHYS 451	Radiation and Medical Physics	3
PHYS 461	General Relativity	3
PHYS 462	Nuclear Physics	4
PHYS 464	Quantum Mechanics	3
PHYS 470	Solid State Physics	3
PHYS 480	Astrophysics	3
PHYS 495	Research or Independent Study in Physics	1-4

Co-Major in Secondary Education

Secondary Education (B.A.) (<http://catalog.montclair.edu/programs/secondary-education-p12-ba/>)

New Student Seminar

Code	Title	Credits
Students in the Adult Learner program must take GNED 100.		
	Complete one course from the following. Some courses may be restricted by major. Consult with an academic advisor.	1
ADVS 198	Pathways to Success	
CHEM 190	Freshman Seminar in Chemistry	
FYS 100	First Year Seminar	
GNED 100	Adult Academic Success Seminar	
GNED 199	New Student Seminar	
HPEM 199	Freshman Seminar in Health and Physical Education	
IDS 155	Pathways to Adult Learning	
JUST 199	New Student Seminar	

MATH 102	New Student Experience for Mathematical Sciences
MUGN 199	Freshman Seminar for Music Majors
NURS 199	Introduction to Nursing
POLS 199	Freshman Seminar in Political Science and Law

SEEDS General Education Requirements

Click here for a list of courses that fulfill the SEEDS requirements. (<http://catalog.montclair.edu/programs/seeds-general-education-requirements/>)

Code	Title	Credits
Foundations		
<i>Effective Writing I</i>		
	Complete one Effective Writing I course.	3
<i>Effective Writing II</i>		
	Complete one Effective Writing II course.	3
<i>Interactive Communication</i>		
	Complete one Interactive Communication course.	3
<i>Quantitative Reasoning</i>		
	Fulfilled by AMAT 120 or MATH 122 in the major.	
<i>Political and Civic Life</i>		
	Fulfilled by SASE 210 in the Teacher Education requirements.	
<i>World Language</i>		
	Complete two sequential classes in one World Language when starting at the Beginner I or Beginner II level. Complete one class when starting at the Intermediate/Advanced Level.	3-6
Exploration		
	Complete one course from four different Exploration categories:	9
<i>Analyzing Cultures and Societies</i>		
<i>Creative Expression</i>		
<i>Ethical Inquiry</i>		
Historical Thinking		
<i>Literary and Artistic Analysis</i>		
<i>Scientific Reasoning</i>		
	Fulfilled by PHYS 191 in the major.	
Total Credits		21-24