

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

Students who wish to pursue P-12 teacher certification in Physical Science must be admitted to the Teacher Education Program. Please visit the Teacher Education Program website (<http://www.montclair.edu/cehs/academics/cop>) 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 chemistry have two teacher certification options to choose from—Physical Science or Chemistry—and should consult with an advisor to determine which certification program they wish to complete. The Teacher Education Professional Sequence Departmental Methods Course is PHED 401. (Credits are counted in the professional sequence.)

A minimum of 120 credits of coursework is required for the baccalaureate degree with a minimum 3.0 overall GPA; however more than 120 credits may be required depending upon the major field of study. Major GPA requirements differ depending on field of study. Consult the Teacher Education Program Handbook for more information.

Program Requirements

Students must complete 42 credits of General Education requirements (<http://catalog.montclair.edu/undergraduate-graduate-degree-requirements/general-ed-ba-bs>) and 3-9 credits of World Languages and Cultures Requirements (<http://catalog.montclair.edu/undergraduate-graduate-degree-requirements/world-languages-cultures-requirement>).

Code	Title	Credits
Chemistry Teacher Ed Required Courses		
CHEM 120	General Chemistry I	4
CHEM 121	General Chemistry II	4
CHEM 230	Organic Chemistry I	3
CHEM 231	Organic Chemistry II	3
CHEM 232	Experimental Organic Chemistry I	2
CHEM 233	Experimental Organic Chemistry II	2
CHEM 310	Analytical Chemistry	5
CHEM 311	Instrumental Analysis	4
CHEM 340	Physical Chemistry I	3
CHEM 341	Physical Chemistry II	3
CHEM 343	Experimental Physical Chemistry	2
CHEM 370	Biochemistry I	3
CHEM 495	The Chemical Literature	1
Chemistry Teacher Ed Elective Courses		
Select 6 credits from the following with no more than 3 credits of Lab Electives:		6
<i>Lab Electives</i>		
CHEM 320	Environmental Chemical Analysis	
CHEM 372	Experimental Biochemistry I	

CHEM 373	Experimental Biochemistry II	
CHEM 421	Experimental Inorganic Chemistry	
CHEM 499	Undergraduate Research	
<i>Non-Lab Electives</i>		
CHEM 371	Biochemistry II	
CHEM 420	Advanced Inorganic Chemistry	
CHEM 430	Advanced Organic Chemistry	
CHEM 440	Advanced Physical Chemistry	
CHEM 490	Selected Topics in Chemistry	
Math Collaterals		
MATH 122	Calculus I	4
MATH 221	Calculus II	4
MATH 222	Calculus III	4
MATH 335	Linear Algebra	4
or MATH 420	Ordinary Differential Equations	
Physics Collaterals		
PHYS 191	University Physics I	4
PHYS 192	University Physics II	4
PHYS 210	Mechanics	4
PHYS 240	Electricity and Magnetism	4
Select one of the following:		4
PHYS 280	Astronomy	
PHYS 350	Optics	
PHYS 460	Modern Physics	
Total Credits		81

Teacher Ed Program Requirements (P-12)

Code	Title	Credits
Teacher Ed Pre-Requisite Requirements		
<i>Health for Teacher Education</i>		
Select one of the following: ¹		3-4
BIOL 100	Biological Sciences	
BIOL 107	Biology for Survival	
BIOL 110	The Biology of Human Life	
BIOL 215	Human Heredity	
BIOL 240	Mammalian Anatomy and Physiology I	
BIOL 241	Mammalian Anatomy and Physiology II	
BIOL 243	Human Anatomy and Physiology	
BIOL 380	Genetics	
HLTH 101	Personal Health Issues	
HLTH 207	Injury Prevention and Emergency Care	
HLTH 208	Study of Human Diseases	
HLTH 213	Perspectives on Drugs	
HLTH 220	Mental Health	
HLTH 290	Human Sexuality	
HLTH 330	Health Education Methods	
HLTH 411	School Health and Community Services	
HLTH 430	Counseling Skills for Public Health Professionals	
HONP 210	Honors Seminar in Science	
HONP 211	Honors Seminar in Contemporary Issues in Science	
HPEM 150	Principles and Practice of Emergency Care	

NUFD 182	Nutrition: A Socioecological Perspective		SASE 452	Teaching for Learning II	3
<i>Speech for Teacher Education</i>			SASE 453	Clinical Practice II	9
CMST 101	Fundamentals of Speech: Communication Requirement	3	Total Credits		49-54
<i>Additional Teacher Ed Pre-Requisites</i>			¹ Or pass the MSU Health Knowledge Test available through the Center of Pedagogy.		
EDFD 200	Psychological Foundations of Education	3			
or PSYC 200	Educational Psychology				
EDFD 220	Philosophical Orientation to Education	3			
EDFD 221	Historical Foundations of American Education	3			
Select one of the following:		3			
EDFD 210	Public Purposes of Education: Democracy and Schooling				
READ 210	Public Purposes of Education: Democracy and Schooling				
SASE 210	Public Purposes of Education: Democracy and Schooling				
Professional Sequence					
<i>Professional Sequence Courses</i>					
Select one of the following:		3			
SASE 305	Teaching for Equity and Diversity				
EDFD 305	Teaching for Equity Diversity				
READ 305	Teaching for Equity Diversity				
Select one of the following:		1			
SASE 312	Educating English Language Learners				
EDFD 312	Educating English Language Learners				
READ 312	Educating English Language Learners				
SASE 310	Inclusion in Middle and Secondary Schools	1			
READ 411	Language and Literacy	3			
SASE 314	Assessment of Learning	1			
SASE 316	Integrating Technology Across the School Curriculum	1			
SASE 450	Clinical Practice I	3			
SASE 451	Seminar in Inclusive Pedagogies	3			
<i>Methods Course(s)</i>					
Select one of the following according to major:		3-7			
ARED 401	Foundations of Methods and Curriculum in Art Education II: P-12				
DNCE 402	Dance Methods				
ENGL 471	Teaching English (secondary)				
FREN 419	Teaching French in P-12: Practice				
HLTH 401	The Teaching of Health				
& PEMJ 444	and Seminar in Physical Education				
& PEMJ 457	and Teaching of Secondary Physical Education				
ITAL 419	The Teaching of Italian in Elementary and Secondary Schools				
LATN 419	Methods of Teaching Latin				
LNGN 403	Methods and Material of TESL				
MATH 470	Teaching of Mathematics				
MUED 320	Music Classroom Methods I				
& MUED 321	and Music Classroom Methods II				
PHED 401	The Teaching of Science in Secondary Schools				
SOSC 401	Methods of Teaching Social Studies				
SPAN 418	Teaching Spanish in K-12				
<i>Professional Semester Courses</i>					