

APPLIED PHYSICS— PHYSICAL SCIENCE TEACHER CERTIFICATION SECONDARY EDUCATION (K-12), B.A.

Completion of this major and New Jersey teacher certification program prepares one for a career as a physical science teacher in high schools in which science is taught as a separate subject. Continued study may include a master's degree in education, physics, geology, biology, environmental science, or natural science.

THE REQUIREMENTS FOR ADMISSION TO THIS CONCENTRATION ARE:

- A minimum cumulative undergraduate grade point average (CGPA) of 3.0.
- A minimum of B- or better on all education courses
- Passing scores on the Praxis CORE, or 560 verbal, 540 Math on the SAT, or 23 or higher on the ACT, or 155 verbal, 156 quantitative on the GRE.

Passing scores on the Praxis CORE Academic Skills for Educators Tests, as of 9/1/19:

- Math Test #5733 Passing Score 150
- Reading Test #5712 Passing Score 156
- Writing Test #5722 Passing Score 162

Students who meet the score levels below are not required to take the Praxis CORE:

SAT Scores

- If taken before 4/1/1995: Math 520, Reading 480
- If taken between 4/1/1995 to 2/28/2016: Math 540, Reading 560
- If taken on or after 3/1/2016: Math 570, 610 Evidence-Based Reading and Writing or 30 Reading Section

ACT Scores

- If taken before 8/28/1989: Math 23, English 20
- If taken on or after 8/28/1989: Math 23, English 23

GRE Scores

- If taken before 8/1/2011: Quantitative 720, Verbal 530
- If taken on or after 8/1/2011: Quantitative 156, Verbal 155

For more information on Praxis exams: <https://www.ets.org/praxis/nj/requirements> (<https://www.ets.org/praxis/nj/requirements/>)

THE REQUIREMENTS FOR COMPLETION OF THIS DEGREE TRACK ARE:

- Completion of NJCU General Education requirements or equivalent
- Successful completion of major in intended content area
- Passing scores on appropriate Praxis II Exam
- A minimum cumulative GPA of 3.0
- Successful completion of clinical experience and clinical practice (student teaching)

This includes successful submission of the performance assessment, edTPA, as required by the New Jersey Department of Education.

Note: For the most updated information on this teaching certification program, students are directed to contact the College of Education as changes may have occurred since publication.

Code	Title	Credits
Required Courses		
PHYS 130	College Physics I (Lecture)	3
PHYS 1130	Physics I Recitation & Laboratory	1
PHYS 131	Physics II (Lecture)	3
PHYS 1131	Physics II Recitation & Laboratory	1
PHYS 230	Physics III (Lecture)	3
PHYS 1230	Physics III Recitation & Laboratory	1
MATH 192	Calculus and Analytic Geometry I	4
MATH 193	Calculus and Analytic Geometry II	4
MATH 292	Calculus & Analytical Geometry III	4
CHEM 105	General Chemistry I Lecture	3
CHEM 1105	General Chemistry I Recitation/Laboratory	2
CHEM 106	General Chemistry II Lecture	3
CHEM 1106	General Chemistry II Recitation/Laboratory	2
MATH 310	Differential Equations	3
Required Upper Level Courses ¹		
PHYS 401	Principles and Application of Modern Optics *	3
PHYS 1401	Optics Recitation/Laboratory	1
PHYS 204	Digital Electronics and Applications	3
PHYS 301	Thermodynamics and Kinetic Theory	3
PHYS 321	Theory and Applications of Electricity and Magnetism	3
PHYS 405	Introduction to Quantum Mechanics *	3
PHYS 410	Classical Mechanics	4
CHEM 305	Physical Chemistry I	3
CHEM 3305	Physical Chemistry I Recitation/Laboratory	2
Upper Level Electives		
MATH 330	Mathematical Statistics I *	3
BIOL 403	Radiation Biology *	4
Required General Education Courses		
BIOL 225	Human Sexual Biology	3
or BIOL 224	The Human Body	
or BIOL 106	Practical Nutrition	
Required Education Courses		
MATH 215	Problem Solving in Mathematics ¹	3
LTED 160	Languages of Power and Social Justice ²	3
BIOL 224	The Human Body	3
or BIOL 225	Human Sexual Biology	
or BIOL 106	Practical Nutrition	
Phase I Courses ³		
EDU 280	Challenges in Urban Education	3
LTED 230	Focus: Reading Language & Literacy	3
Phase II Courses ⁴		
EDU 330	Focus: Development, Behavior and Learning	3

EDU 371	Grades 7-12 Methods/Materials	3
Phase III Courses ⁵		
LTED 370	Secondary:Reading & Language Workshop	2
EDU 3372	Methods and Materials of Teaching Science in Middle and Secondary Schools	3
EDU 331	Clinical Practice I	2
Phase IV Courses ⁶		
EDU 470	Concurrent Student Teaching Seminar	2
EDU 480	Clinical Practice II ⁷	8
EDU 485	Classroom Management and Assessment Internship Seminar	2
Total Credits		112

¹ Strongly recommended for students who have yet to meet Praxis Core Writing and Reading requirements.

² Required of students who have yet to meet Praxis Core Math Requirement.

³ For certification purposes, at least 12 credits of 300 or 400 level classes are required (indicated with *).

⁴ These two courses must be taken prior to admission to any education program.

⁵ These courses may be taken concurrently.

⁶ These courses must be taken concurrently. Courses are offered in Fall only.

⁷ Students must pass appropriate Praxis II exam before registering for EDU 480.

Freshman

Semester 1		Credits
ENGL 101	English Composition I	4
INTD 101	Orientation to College *First time freshman only	1
MATH 175	Enhanced Precalculus	4
BIOL 225 or BIOL 224 or BIOL 106	Human Sexual Biology or The Human Body or Practical Nutrition	3
Credits		12

Semester 2

ENGL 102	English Composition II	4
INTD 180	Computer Tools For Science and Mathematics	3
PHYS 113	Introduction to Astronomy	3
General Education Tier II Course		3
General Education Tier II Course		3
Credits		16

Sophomore

Semester 1		
PHYS 130 & PHYS 1130	College Physics I (Lecture) and Physics I Recitation & Laboratory	4
EDU 280	Challenges in Urban Education	3
LTED 230	Focus: Reading Language & Literacy	3
MATH 192	Calculus and Analytic Geometry I	4
CHEM 105 & CHEM 1105	General Chemistry I Lecture and General Chemistry I Recitation/ Laboratory	5
Credits		19

Semester 2

PHYS 131 & PHYS 1131	Physics II (Lecture) and Physics II Recitation & Laboratory	4
MATH 193	Calculus and Analytic Geometry II	4
CHEM 106 & CHEM 1106	General Chemistry II Lecture and General Chemistry II Recitation/ Laboratory	5
General Education Tier III Capstone Course		3
Physics Elective Course		3
Credits		19

Junior

Semester 1

EDU 330	Focus: Development, Behavior and Learning	3
EDU 371	Grades 7-12 Methods/Materials	3
MATH 292	Calculus & Analytical Geometry III	4
PHYS 240	Digital Techniques and Applications	3
Physics Elective Course		3
Credits		16

Semester 2

PHYS 230 & PHYS 1230	Physics III (Lecture) and Physics III Recitation & Laboratory	4
PHYS 321	Theory and Applications of Electricity and Magnetism	3
PHYS 401	Principles and Application of Modern Optics	3
PHYS 404	Nuclear Radiation: Theory and Applications	3
PHYS 405	Introduction to Quantum Mechanics	3
Credits		16

Senior

Semester 1

LTED 370	Secondary:Reading & Language Workshop	2
EDU 331	Clinical Practice I	2
EDU 3372	Methods and Materials of Teaching Science in Middle and Secondary Schools	3
MATH 311	Differential Equations for Engineers	4
PHYS 480	Physics Research	3
Physics Elective Course		3
Credits		17

Semester 2

EDU 470	Concurrent Student Teaching Seminar	2
EDU 480	Clinical Practice II	8
EDU 485	Classroom Management and Assessment Internship Seminar	2
Credits		12
Total Credits		127

**Education majors are exempt from 9 GE credits in Tier 2 as a dual major with required courses in other subjects.