



BIOLOGICAL SCIENCE EDUCATION (K-12)

Five-Year Teacher Education Program

Revised February, 2023 -- For students earning a bachelor's degree in May, 2023 or later

Students who complete this program successfully will receive an Ed.M. in Science Education from the GSE as well as a recommendation to the New Jersey Department of Education for **Teacher of Biological Science (K-12) Certificate of Eligibility with Advanced Standing (CEAS)**.

- I. PROGRAM DESCRIPTION:** The five-year teacher education program in biological science education (K-12) leads to a bachelor's degree, a master's degree, and initial teacher certification in science education. Rutgers undergraduates do preliminary coursework and field placements as assigned during the sophomore and junior years, are admitted to the program during the spring semester of the junior year, and enter the professional education sequence in the summer between junior and senior years. Students then qualify to have their bachelor's degree awarded by the undergraduate liberal arts college.

Students continue with the professional sequence the summer after graduation. They return in the fall to complete a student-teaching internship with related coursework and continue with full-time graduate study, including a field-based research project, in the spring. The Ed.M. degree is conferred upon the completion of all five-year program requirements.

After the master's degree is awarded, the GSE will make a recommendation to the New Jersey State Department of Education on behalf of the student to receive a CEAS as a teacher.

The program has four major goals:

1. To help students develop a view of science as a knowledge building enterprise and understand the scientific practices associated with scientific inquiry.
2. To help students learn pedagogical content knowledge of biological sciences, i.e., content specific teaching methods in these disciplines.
3. To familiarize students with current state and national standards in life science education.
4. To provide students with the knowledge and skills of integrating technology into biological science instruction.

- II. MAJOR:** Every candidate for certification in Biological Science Education must complete a full major in a life science (animal science, biotechnology, biological science, cell biology and neuroscience, ecology and natural resources, environmental science [life science option], food science, genetics and microbiology, marine science [life science option], molecular biology, nutritional sciences, plant science, physiology). Regardless of the major chosen, at least 30 credits of coursework in the life sciences must be included.

- III. APPLICATION REQUIREMENTS:** To be considered for admission to the program, applicants must provide the following before the application deadline:

1. Personal statement
2. One letter of recommendation
3. Passing Praxis Core test scores **or** one of the following:
 - a. SAT: greater than 50th SAT User Percentile in both Math and Evidence-Based Reading and Writing
 - b. ACT: greater than 50th percentile in both Math and English
 - c. GRE: greater than 50th percentile in both Verbal and Quantitative Reasoning(Any test scores submitted must be less than five years old at the time of the application deadline. Scores must be official, not self-reported.)

Praxis Core – see ets.org/test/5752.html
Combined test code: 5752
Reading: 5713, minimum score 156/200
Writing: 5723, minimum score 162/200
Math: 5733, minimum score 150/200

4. Official undergraduate transcripts - the New Jersey Department of Education requires a minimum GPA of **2.75** to be admitted to a teacher education program.

(NOTE: Admission to the GSE Teacher Education Programs is competitive. Meeting the minimum requirements above does not guarantee admission.)

IV. HOW TO APPLY: Applications are submitted online at the Graduate Admissions website:

<http://gradstudy.rutgers.edu/>

1. Click on "Create Account or Login" and follow the instructions given.
2. Under "Start an application today!", click **Apply Now**
Application Selection
3. For "Level of Application", select **Graduate**
4. For "Applicant Type", select **Degree**
5. Continue filling out the application, following the on-screen instructions.
Program of Study
6. Under "Program Information", make sure **Degree** is selected for "Applicant Type"
7. For "Degree Type", select **Master's (e.g. MA, MS, EdM, MFA)**
8. For "Area of Study", select **Education**
9. For "Location/Instructional Method", select **New Brunswick**
10. For "Program Selection", select **Education - Science - 5 Year (EDM) New Brunswick**
Program Details
11. For "First Preference Concentration", select **Biological Science Certification**. (2nd and 3rd preferences can be left blank.)
12. For "Term", select the summer semester after your May undergraduate graduation date.
13. Complete the rest of the application by providing the requested information.
14. Enter payment information for the non-refundable application fee.
15. Submit your application.

V. GENERAL EDUCATION REQUIREMENTS: Students must complete coursework in each of the following areas by completion of the program; fulfillment of these courses is not required for admission into the program. It is highly recommended that you coordinate the elements of this list with those of the general distribution requirements of your undergraduate college to make the most efficient use of your time.

General Education Requirements	Course Number—Course Title—Term/Year—Grade
1. Math: two courses Follow SAS Core Quantitative and Formal Reasoning requirement (QQ, QR)	1a. _____ 1b. _____
2. Science: two courses Follow SAS Core Natural Science requirement	2a. _____ 2b. _____
3. Educational Technology: one course 05:300:462 Demonstrations and Technology in Science Teaching (see professional sequence Phase 4 below)	3. _____
4. Human Development: one course 05:300:307 Human Development: Birth through the Transition to Adulthood	4. _____

VI. LIBERAL ARTS: Students must complete a minimum of **60 credits** in liberal arts to earn the master's degree. Neither Education courses, nor any other performance-based or vocationally-oriented coursework (accounting, engineering, human resource management, public health, social work, etc.) may be counted toward the 60 liberal arts credits; no School 05, School 15, or E-credit courses may be included.

VII. PROFESSIONAL EDUCATION REQUIREMENTS: Biological Science Education Five Year Teacher Education Program

Phase/ Semester	Course Number	Course Name	Credits		
			Under- grad	Grad	Total
Pre- Admission Sophomore or Junior Year	05:300:200	Introduction to Education	3		6.5
	05:300:201	Introduction to Education Field Based Lab - Clinical Experience	.5		
	05:300:306	Educational Psychology: Principles of Classroom Learning	3		
Phase 1 Summer before Senior Year	n/a	Working with Minors Online Training	NC		0
	n/a	School Law Module	NC		
Phase 1 Senior Fall	05:300:498	Clinical Experience Phase 1	.5		6.5
	05:300:450	Urban Education 1	1.5		
	05:300:452	Teaching Emerging Bilinguals in PK-12 Classrooms 1	1.5		
	15:256:550	Biology and Society	3		
Phase 2 Senior Spring	05:300:499	Clinical Practice Phase 2	4		10
	05:300:451	Urban Education 2	1.5		
	05:300:453	Teaching Emerging Bilinguals in PK-12 Classrooms 2	1.5		
	15:256:553	Teaching and Assessment in Life Science	3		
Phase 3 Fifth Year Summer	15:293:534	Classroom Organization for Inclusive and Special Classrooms		3	6
	Grad level ^G	Elective		3	
Phase 3 Fifth Year Fall	15:255:535	Clinical Practice Phase 3		9	15
	15:255:532	Clinical Practice Phase 3 Seminar		6	
Phase 4 Fifth Year Spring	05:300:406 ^G	Community-Based Language Learning; or Teaching English Language Learners; or Students, Communities, and Social Justice		3	12
	15:253:540				
	15:255:539				
	05:300:462 ^G	Demonstrations and Technology in Science Teaching (Biology)		3	
	15:293:523	Inclusive Teaching in Education		3	
	Grad level ^G	Elective		3	
Total Credits			20	36	56

^G Course must be 300-level or above to count towards graduate credits. 300- and 400-level courses must be registered for with a **G-prefix**.

VIII. GSE COMMUNITY-SCHOOL PARTNERSHIP NETWORK (GSE-CSPN): All field experiences will take place in a GSE-CSPN school.

IX. HIB TRAINING: All candidates for teacher certification must complete pre-service training in the prevention of harassment, intimidation, and bullying (HIB) prior to Clinical Practice II.

X. PRAXIS II TESTS: Students seeking certification in biological sciences must achieve passing scores on the Biology: Content Knowledge (test code 0235/5235) and General Science: Content Knowledge (test code 0435/5435) Praxis II examinations. **Students must pass both tests prior to the start of full-time Clinical Practice Phase 3.**

XI. PERFORMANCE-BASED ASSESSMENT (PBA): All candidates must pass a designated performance-based assessment during the Clinical Practice Phase 3.

XII. PHYSIOLOGY, HYGIENE, AND SUBSTANCE ABUSE ISSUES: The Office of Student and Academic Services administers this New Jersey Department of Education exam during the final semester of the program.

New Jersey Certification Options

Bilingual/Bicultural Teacher	English as a Second Language	Bilingual/Bicultural & ESL	Teacher of Students with Disabilities	Preschool through Grade 3
12 credits - ONLINE	15 credits - ONLINE	18 credits - ONLINE	21 credits - ONLINE	24 credits
15:253:522 Bilingual-Bicultural Ed	15:253:523 Language and Culture	15:253:522 Bilingual-Bicultural Ed	05:300:383 Intro to Special Ed	05:300:304 Art Across the Curriculum
15:253:520 Principles of Language Learning: Second and World Language Acquisition	15:253:520 Principles of Language Learning: Second and World Language Acquisition	15:253:520 Principles of Language Learning: Second and World Language Acquisition	15:293:523 Inclusive Teaching in Education	05:300:410 Learning and Development in a Social Context: Preschool and Primary Years
15:253:530 Foundations of Language	15:253:530 Foundations of Language	15:253:530 Foundations of Language	15:299:516 Literacy Development in the Elementary and Middle School	15:251:574 Integrated Curriculum with Young Children
05:300:452 and 05:300:453 Teaching Emerging Bilinguals in PK-12 Classrooms 1 and 2	05:300:452 and 05:300:453 Teaching Emerging Bilinguals in PK-12 Classrooms 1 and 2	05:300:452 and 05:300:453 Teaching Emerging Bilinguals in PK-12 Classrooms 1 and 2	05:300:480 Literacy for Students with Disabilities	15:251:581 Early Childhood Curriculum and Assessment
	15:253:539 Methods for Teaching and Assessing English Language Learners	15:253:539 Methods for Teaching and Assessing English Language Learners	15:293:522 Learning Disabilities	15:253:540 or 15:255:539 Teaching English Language Learners or Students, Communities, and Social Justice
		15:253:523 Language and Culture	15:293:533 Assessment and Measurement for Special Education	15:295:521 Child, Family, and Community: Relationships in Development
			15:293:534 Classroom Organization for Inclusive and Special Classrooms	15:295:522 Cognition and Language Birth to Age 8: Normal Development and Implications for Risk and Disability
<i>Demonstrated proficiency in an additional language required</i>	<i>Demonstrated proficiency in English required</i>	<i>Demonstrated proficiency in English and an additional language required</i>	<i>Not available to students in ESL-only programs</i>	15:299:514 Literacy Development in the Early Years

Rutgers Professional Certificate Options

Educational Technology	Gifted Education	Maker Education
9 credits - ONLINE	15 credits - ONLINE	15 credits
15:255:503 Introduction to Teaching with Digital Tools	15:294:531 (OR 05:300:320) The Gifted Child	15:290:553 Developing a Maker Mindset
15:255:504 Web-Based Multimedia Design for Educators	15:294:532 (or 05:300:322) The Social & Emotional Development of Gifted Children	15:290:554 Designing/Facilitating Maker-Centered Learning Environments
15:255:506 Developing Digital e-Learning Environment	15:294:533 Curriculum & Instruction for the Gifted	15:290:556 Introduction to Design Thinking
	15:294:534 Gifted Program Development	15:290:555 Makerspace Safety and Emergency Lab
	15:294:535 Clinical Placement and Practicum	15:290:559 Maker Education Capstone

Consider starting an additional state licensure program and/or a Rutgers certificate program while working on your master's degree requirements. In consultation with your advisor, you may consider taking courses from these areas in place of your graduate-level elective(s).*

You must complete an application form and obtain a signature from your faculty advisor prior to the final semester of the program. The application forms are available in the Office of Student and Academic Services or by emailing Marie Pavelchak at: marie.pavelchak@gse.rutgers.edu. Some programs require licensure exams for admission and/or certification recommendation.

These programs do not lead to a degree of any kind.

It is your responsibility to enroll in all of the required courses through Rutgers University. No program requirements may be met at any other institution. You are expected to maintain a "B" or better average in the non-degree coursework.

After completing all of the required courses in a NJ certification program, you should contact Ken Tufo in the Office of Student and Academic Services for instructions on applying for the state endorsement. Please note that you cannot obtain an endorsement until you complete the initial teacher certification. After completing all of the required courses in a GSE certificate program, you contact Marie Pavelchak to obtain your completion certificate.

*Not all courses are available to five-year students during their senior year. You may not be able to complete these programs until after you earn your master's degree. Please email ken.tufo@gse.rutgers.edu for specifics.