Credit-by-exam (CBE) or credit-by-portfolio (CBP) for Master's degree programs

In limited situations, assessment of a student's prior learning may allow the transfer of up to six graduate credits in specific master-level programs. Approval by the pertinent Dean (in consultation with the program director) is needed. The student must take all other courses at NJIT to complete the degree requirements. Rigorous credit-by-exam (CBE) or credit-by-portfolio (CBP) administered by the student's academic program assesses knowledge acquired professionally or through non-credit professional development courses. The T (transfer) grade shows next to the transferred course(s) in the student's transcripts. The corresponding college dean will provide oversight of the CBE/CBP process to ensure consistency and integrity of the assessment process and criteria.

Motion to revise Eligibility for Graduate Faculty Status to account for MOUs that allow faculty from other universities to come to NJIT

- All NJIT Faculty members and non-NJIT Faculty members in federated departments and joint graduate degree programs are automatically members of the NJIT Graduate Faculty.
- Instructional Staff (e.g., research professors, university lecturers, visiting professors, professors of practice, adjunct faculty) and Faculty Emeriti may be appointed to the Graduate Faculty for renewable terms of five years. Appointment is made by the academic Dean on the recommendation of the Graduate Faculty members of an academic ~~D~~department~~, academic~~ or unit, or interdisciplinary graduate program. It is endorsed by the Dean of the Graduate Faculty. Qualifications for appointment include a doctoral degree or accepted terminal degree in the relevant field and evidence of appropriate scholarly activity such as peer-reviewed journal publications, publication of scholarly books or book chapters, editorial activities, externally funded research grants, or the equivalent.
- For agreements endorsed by NJIT's Senior Administration for establishing joint or dual-degree graduate academic programs or long-term research collaborations with domestic or international universities, visitors holding tenure-track faculty positions in any of these universities may be appointed to NJIT's Graduate Faculty for a renewable term of up to five years (not exceeding the remaining term of the related agreement). The process and required qualifications are similar to those for appointing NJIT Instructional Staff.

Privileges and Responsibilities of Graduate Faculty

- All NJIT Faculty members are eligible to serve as primary advisors for PhD dissertations and master's theses and as chairpersons of PhD dissertation committees.
- Other Graduate Faculty members may have primary responsibility for delivery of graduate courses, serve on PhD dissertation and master's thesis committees, and serve as co-advisors of master's theses. T~~, but t~~hey are not eligible to serve as primary advisors or co-advisors for PhD dissertations, or as primary advisors for master's theses, or to chair doctoral dissertation committees, unless approved by the Graduate Faculty of the relevant academic d~~D~~epartment or~~, academic~~ unit, or interdisciplinary graduate program with subsequent endorsements by the academic Dean and the Dean of the Graduate Faculty.~~.~~

Motion: GRE/GMAT Waiver

Non-engineering academic programs can opt out of the GRE (or GMAT) requirement with the college Dean's approval. The justification must address the expected impact of the decision on college and/or program rankings, improvements in the quality and/or number of applicants, a planned holistic approach for admission decisions due to the GRE/GMAT waiver, and lists of peer and aspirational institutions that have waived the GRE/GMAT requirement for relevant academic programs. Only those students (master's or PhD) who submit GRE/GMAT scores with their application for admission can receive NJIT-funded awards such as the Provost's or Gary Thomas Doctoral Assistantships; this does not apply to TA awards.

Program Change Request

Date Submitted: 11/16/21 2:25 pm

Viewing: SL-BIOL-PHD : Phd. in Biology

Last approved: 06/26/20 1:01 pm

Last edit: 11/16/21 2:25 pm

Changes proposed by: Dirk Bucher (bucher)

Catalog Pages Using this Program

Ph.D. in Biology

Department(s) / College(s)

In Workflow

1. **BIOL Chair**
2. **AIS**
3. **SL Dean**
4. **Vice Provost of Graduate Studies**
5. President of the Faculty Senate
6. Provost's Office
7. Academic Issues Committee

Approval Path

1. 11/23/21 4:21 pm Farzan Nadim (farzan): Approved for BIOL Chair
2. 11/23/21 4:30 pm Mesfin Ayne (ayne): Approved for AIS
3. 11/24/21 10:23 am John Wolf (jwolf): Approved for SL Dean

History

1. Jun 24, 2020 by Mesfin Ayne (ayne)
2. Jun 25, 2020 by Mesfin Ayne (ayne)
3. Jun 25, 2020 by Mesfin Ayne (ayne)
4. Jun 26, 2020 by Mesfin Ayne (ayne)

Department	College
Biology (BIOL)	Coll of Science & Liberal Arts (SL)

Name of Program	Phd. in Biology
Academic Level(s)	~~Graduate~~ Doctoral
Degree Designation	PHD
Campus(es) where the program will be offered	Newark
CIP Code	
Effective Catalog Edition	2022-2023
Faculty Senate Review required?	
Related Department(s)	

If the change involves altering the department's curriculum paradigm as currently outlined in the NJIT catalog, please attach existing and proposed paradigms.

Articulation with other institutions, if any

Objectives

Briefly summarize the program and indicate its objectives; e.g., the nature and focus of the program, the knowledge and skills students will acquire, any cooperative arrangements with other institutions or external agencies in offering this program, etc.

Need

Provide justification of the need for this program. If the program falls within the liberal arts and sciences and does not specifically prepare students for a career, then provide evidence of student demand and indicate opportunities for students to pursue advanced study (if the degree is not terminal with regard to further education). If the program is career-oriented or professional in nature, then in addition to student demand give evidence of labor market need and results of prospective employer surveys. Report labor market need as appropriate on local, regional, and national bases. Specify job titles and entry-level positions for program graduates, and/or indicate opportunities for graduates to pursue additional studies.

Relationship to the University and State Master Plans

Describe the relationship of the program to the following: institutional master plans and priorities.

Relationship to Similar Programs in the State and Region

List similar programs within the state and in neighboring states. How does this program compare to those currently being offered?

Distinguished Programs Nationally

For doctoral programs: Supply a select list of distinguished programs nationally in this discipline.

Students

Estimate anticipated enrollments from the program's inception until a steady state or optimum enrollment is reached.

Resources to Support the Program

Briefly describe the additional resources needed to implement and operate the program during the program's first five years, e.g., the number of full-time faculty, number of adjunct faculty, computer equipment, print and non-print material, etc.

Course
Development Plan

Names of faculty
involved

Libraries and
Computing
Facilities

Classrooms and
Laboratories Needs

Catalog Description (For PHD programs, include information about the qualifying exams, and other program milestones.)

Grade Requirements

Students are expected to successfully complete all of the Core and Elective credits taken within the Graduate Program. Course work provides the formal foundation upon which a successful research project and Dissertation Defense is built. To remain in good standing, a GPA of 3.0 or better must be maintained for all courses taken as part of the graduate course of study. Courses cannot be repeated in order to improve on poor performance. Furthermore, while in the program, a student

can receive grades of C or C+ in a maximum of two courses, only one of which may be in the Program and Track Core courses.

Biology Colloquium

The Biology Colloquium is held weekly during the semester and consists of research presentations by invited speakers, students, and faculty, as well as professional development/career advice events and organizational meetings. All students, including post-qualifying students, are required to attend while being matriculated in the program.

~~Mentoring Semester Every incoming student will be assigned to a "Mentor Lab" for their first semester in theprogram.During this time, each student is required to actively participate in lab meetings, journal clubs, and other general labactivities.Additionally, the student must participate in some minimal form of research work as determined by agreement with the FacultyMentor.~~

Laboratory Rotations

Laboratory rotations provide opportunities for laboratory research and independent study with Graduate Faculty members. Students are required to complete two semester-long rotations. The main objective of the lab rotations is to identify a lab in which to complete dissertation work. Additional anticipated outcomes of the rotations include the development of laboratory and/or computational research skills, development of analytical and critical thinking skills, and appreciation of a specific research field.

Selection of Dissertation Lab

Following completion of the laboratory rotations, students must select a Graduate Faculty member who will serve as their Dissertation Advisor during the research phase of the doctoral program. Once completed, the student will commence developing a project and accumulating preliminary data for the dissertation. The program accommodates joint or interdisciplinary projects supervised by two or more faculty members. One faculty member serves as the Primary Advisor and provides the work space for the student, others can serve as Co-Advisors.

Qualifying Exam

Following the successful completion of all course requirements, rotations, and identification of the Dissertation Advisor, each student must pass a Qualifying Exam to remain in the program. After successful completion of the Qualifying Exam, the student becomes a Ph.D. candidate. The exam is typically held in June of the second year, unless the coursework was completed earlier. The exam will be administered by a Qualifying Exam Committee of three Graduate Faculty members. The overall purpose of the Qualifying Exam is to assess the student's preparation and ability to plan an original, scholarly scientific investigation. The Qualifying Exam consists of a written research proposal and an oral exam.

Dissertation Committee

Within 9 months of the completion of the Qualifying Exam, the student assembles a Dissertation Committee, under the guidance of the Dissertation Advisor. The Dissertation Committee will be composed of the student's Dissertation Advisor, one external member from outside the NJIT-Rutgers scholarly community, and three members of the Biology Graduate Faculty. It is the primary advisory group responsible for supervision and guidance of the Student during the research phase of the dissertation. The Dissertation Committee also serves as the examination committee for the Dissertation Defense. The Dissertation Committee regularly meets with the student in 6-12 months intervals to discuss research progress, experimental challenges, and potential changes to the original plan. The ultimate charge of the Dissertation Committee before the Dissertation Defense is to ensure that the student is making appropriate progress towards a timely and successful defense.

Thesis Proposal

Within a year of the Qualifying Exam, the student presents and defends the Thesis Proposal (the dissertation research proposal) to the Dissertation Committee. The written Thesis Proposal should follow the format of NIH or NSF postdoctoral fellowship applications. The Thesis Proposal meeting is an oral exam that will determine the student's ability to conceive, design, and conduct the proposed research project. It is a required milestone in the program, and approval by the Dissertation Committee should be viewed as a statement that the scope and originality of the proposal is sufficient to earn a Ph.D. degree upon successful completion.

Dissertation Defense

Completing the program and earning a doctoral degree requires a written Thesis, a public Dissertation Defense, and an oral examination by the Dissertation Committee. Approximately six months prior to the planned Dissertation Defense, the Dissertation Committee will evaluate if sufficient progress has been made to warrant final preparation of a thesis and to establish an approximate timetable for the thesis public presentation and private defense. The completed Thesis document must be submitted to all members of the Dissertation Committee at least one month prior to the scheduled Dissertation Defense. The Dissertation Defense must be advertised in advance, with a minimum of 10 days' notice, and open to anyone wishing to attend.

Curriculum

Course Requirements

General Credit/Course Distribution

~~Three Biology Graduate Program Core Courses~~	~~9~~
Two Biology Graduate Program Core Courses	6
Two or Three Track Specific Core Courses, dependent on track	6-9
Two Semester Long Laboratory Rotations	6
~~Four or five Elective Courses, dependent on track~~	~~12-15~~
~~Total Required Research Credits~~	~~24~~
Five or six Elective Courses, dependent on track	15-18
Total Credits	36

Ph.D. in Biology (Track: Cell and Molecular Biology)

Program Core Courses		
~~R120 560~~	~~College Teaching~~	~~3~~
BIOL 630	Critical Thinking for the Life Sciences	3
MATH 615	Approaches to Quantitative Analysis in the Life Sciences [1]	3
Track Core Courses		
R120 524	Cell Molec Dev	3
R120 515	Molecular Bio Of Eukaryotes	3
R160 581	Biochemistry	3
Electives		
Approved electives [2]		15
Two Lab Rotations		
R120 509	Adv Problems In Biology	3
or R120 510	Adv Prob In Biol	
BIOL 725	Independent Study I	3
or BIOL 726	Independent Study II	
~~Required Research~~		
~~Research~~		~~24~~
Total Credits		36

1 Equivalent course may be substituted if approved.

2 Elective courses can be any graduate level courses offered by the program, including track core courses from the other tracks. In addition, courses may be taken from a variety of graduate level offerings in different programs at Rutgers University-Newark, NJIT, Rutgers NJMS, Rutgers University-Camden, Rutgers University-New Brunswick, and others. Enrollment in courses offered by graduate programs outside of the Graduate Program in Biology requires permission from the program.

Ph.D. in Biology (Track: Ecology and Evolution)

Required Courses		
~~R120 560~~	~~College Teaching~~	~~3~~
BIOL 630	Critical Thinking for the Life Sciences	3
MATH 615	Approaches to Quantitative Analysis in the Life Sciences [1]	3
Track Core Courses		
~~R120 523~~	~~Scale Of Biodiversity~~	~~3~~
BIOL 622	Evolution	3
BIOL 621	Ecology	3
Electives		
Approved electives [2]		18
Two Lab Rotations		
R120 509	Adv Problems In Biology	3
or R120 510	Adv Prob In Biol	
BIOL 725	Independent Study I	3
or BIOL 726	Independent Study II	
~~Required Research~~		
~~Research~~		~~24~~

Total Credits		36

1 Equivalent course may be substituted if approved.

2 Elective courses can be any graduate level courses offered by the program, including track core courses from the other tracks. In addition, courses may be taken from a variety of graduate level offerings in different programs at Rutgers University-Newark, NJIT, Rutgers NJMS, Rutgers University-Camden, Rutgers University-New Brunswick, and others. Enrollment in courses offered by graduate programs outside of the Graduate Program in Biology requires permission from the program.

Ph.D. in Biology (Track: Neurobiology)

Program Core Courses		
~~R120 560~~	~~College Teaching~~	~~3~~
BIOL 630	Critical Thinking for the Life Sciences	3
MATH 615	Approaches to Quantitative Analysis in the Life Sciences [1]	3
Track Core Courses		
BIOL 640	Cellular Neurophysiology	3
BIOL 641	Systems Neuroscience	3
MATH 635	Analytical Computational Neuroscience [2]	3
Electives		
Approved electives [3]		15
Two Lab Rotations		
R120 509	Adv Problems In Biology	3
or R120 510	Adv Prob In Biol	
BIOL 725	Independent Study I	3
or BIOL 726	Independent Study II	
~~Required Research~~		
~~Research~~		~~24~~
Total Credits		36

1 Equivalent course may be substituted if approved.

2 Appropriate course may be substituted for students with stronger interests in Cellular and Molecular Neuroscience or Neuroethology and Behavior.

3 Elective courses can be any graduate level courses offered by the program, including track core courses from the other tracks. In addition, courses may be taken from a variety of graduate level offerings in different programs at Rutgers University-Newark, NJIT, Rutgers NJMS, Rutgers University-Camden, Rutgers University-New Brunswick, and others. Enrollment in courses offered by graduate programs outside of the Graduate Program in Biology requires permission from the program.

Is licensure required of program graduates to gain employment?

Will the institution seek accreditation for this program?

Add any additional information you would like brought to the attention of CUE/ CGE here

Attach any additional information you would like brought to the attention of CUE/ CGE here: Uploaded Files:

Reviewer Comments

Key: 246