



SENIOR RESEARCH IN CBN SYLLABUS

COURSE TITLE: SENIOR RESEARCH IN CBN

COURSE CATALOG NUMBER: 01:146:406

SEMESTER: Fall; 1 research credit = 4-5 hours of research in the lab per week

COURSE COORDINATOR AND CONTACT INFORMATION:

Dr. Shu Chan Hsu (Coordinator)

D410 Nelson Labs

Busch Campus

Hsu@biology.rutgers.edu

COURSE MEETING DAYS, TIMES, LOCATION, MODALITY:

Students doing supervised research in a Rutgers/RWJMS laboratory.

1 research credit = 4-5 hours of research in the laboratory per week.

Research credit application:

Procedure: Once you have been accepted into a Rutgers/RWJMS laboratory for supervised research, email the research coordinator

1. A completed research application form from the CBN “Research for credits” site.
2. A 1- or 2-page research proposal written in coordination with your laboratory research mentor to describe your research project and your role in the research project.

Research project approval: fulfillment of 4 criteria is necessary for research project approval

1. The research project must involve a molecule, a cell, or the nervous system.
2. The research project should have a research component to train students in scientific methodology and a mentoring component to train students in scientific data analysis.
3. The student must be involved in the analysis of research data.
4. The head of the laboratory is a Rutgers/RWJMS faculty.

In the event that in-person undergraduate research is not permitted on campus, literature search or remote data analysis under the mentorship of a Rutgers/RWJMS research laboratory will be permitted to fulfill the CBN research requirement.

Spring research application deadline: Sept. 30, 2026

Fall progress report deadline: Dec. 4, 2026 (before the last week of school)

OFFICE HOURS / STUDENT SUPPORT HOURS:

Students can schedule meetings with the faculty coordinator as needed.

COURSE DESCRIPTION:

This course aims to provide students with an experience to apply and further their classroom knowledge through research under the mentorship of Rutgers/RWJMS faculty.

To gain maximal experience from this research program, students should:

- Arrange course schedules to accommodate a minimum block of 8-10 hours of free time each week for laboratory research.
- Find a laboratory of interest by reviewing lab research links at the CBN “Research for credits” website. Email laboratory professors to apply for acceptance into a laboratory for undergraduate research.

Prerequisites

- General Biology 119:115-116
- A CBN GPA of 2.8 or above
- Intended for Senior students who intend to major in CBN and have been accepted into a Rutgers/RWJMS laboratory for supervised research.

REQUIRED TEXTS AND COURSE MATERIALS:

None. Resources to help students write a research progress report are available at the course Canvas site.

TECHNICAL / TECHNOLOGY REQUIREMENTS:

A laptop with internet access for accessing course materials and submitting research progress reports to the course Canvas site AND to the research mentor.

Technology challenges:

Please visit the Rutgers Student Tech Guide page for resources available to all students. If you do not have the appropriate technology for financial reasons, please email the Dean of Students at deanofstudents@echo.rutgers.edu or complete the contact form for assistance. If you are facing other financial hardships, please visit the Office of Financial Aid at <https://financialaid.rutgers.edu/>.

COURSE LEARNING GOALS:

1. Master *factual and conceptual knowledge in cell biology and neuroscience that will provide a solid foundation for success in advanced training and professional careers.*
 - Familiar with scientific methodology to acquire research data.
 - Understand how to implement experiments correctly from laboratory protocols.
 - Understand how to troubleshoot and modify experimental procedures.
2. Develop *an ability to summarize, integrate, and organize information.*
 - Know how to keep organized and update records of all experimental activities and observations.
 - Know how to summarize, integrate, and compare literature information relevant to the research project.
 - Know how to organize data and literature information to write comprehensible and accurate science reports.
3. Use *scientific reasoning to evaluate the potential for current research and new discoveries to improve our understanding of cell biology and neuroscience and their relevance to human health and to our society.*
 - Know how to formulate a workable hypothesis based on the proposed research project.

- Know how to analyze research and literature data in an unbiased and quantitative manner.
- Know how to draw supported conclusions from available research and literature data to prove or disprove the research hypothesis and plan future directions.

DEPARTMENTAL LEARNING GOALS:

<https://cbn.rutgers.edu/academics/undergraduate/learning-goals>

1. Master factual and conceptual knowledge in cell biology and neuroscience that will provide a solid foundation for success in advanced training and professional careers.
2. Develop an ability to summarize, integrate, and organize information.
3. Use scientific reasoning to evaluate the potential for current research and new discoveries to improve our understanding of cell biology and neuroscience and their relevance to human health and to our society.

COURSE FORMAT:Laboratory research:

- Students are expected to complete a minimum of 4-5 hours of laboratory research per week for each applied research credit.
- Once accepted into a laboratory, students should work out a mutually workable research schedule with their research mentors. It is recommended that students not change that schedule without first consulting their research mentors. Student research effort in the laboratory is part of a student's research grade.

Written progress report:

- A minimum of a 10-page progress report in the format of a scientific manuscript is due before or at the designated deadline.
- The report must be submitted to the research mentor AND to the Canvas course "Progress report" site.

Progress report resources:

- At the Canvas course "Modules" site, students can find
- Research FAQs
- Progress report template
- Guidelines for research grade determination
- Writing checklist for progress report

GRADING SCALE:

- Student grades will be determined by the faculty research mentors and submitted directly to the course coordinator. Before the grade submission deadline, research mentors will be notified to submit student research grades based on student research effort and progress report quality. A copy of the suggested guidelines for research-grade assignments, which will be sent to all research mentors, can be found at the Canvas course "Modules/Student resources" site. The grade ranking is as follows:

- A** = excellent research effort and progress report
B+ = very good research effort and progress report
B = good research effort and progress report
C+ = OK research effort and progress report
C = barely passable research effort and progress report
D = unsatisfactory research effort and progress report
F = unacceptable research effort and progress report

POLICIES:**AI usage policy for progress report writing:**

Students may use AI tools to generate an initial outline for their research progress report. However, AI may *not* be used to write, rewrite, or compose any report sections. Students are also prohibited from using AI to generate references. All writing and citations in the final submission must be the students' own work.

Academic Integrity Policy:

Rutgers University takes academic dishonesty very seriously. By enrolling in this course, you assume responsibility for familiarizing yourself with the Academic Integrity Policy and the possible penalties (including suspension and expulsion) for violating the policy (<http://academicintegrity.rutgers.edu/academic-integrity-policy>). Per policy, all suspected violations will be reported to the Office of Student Conduct. Academic dishonesty includes (but is not limited to):

- Cheating
- Plagiarism
- Aiding others in committing a violation or allowing others to use your work
- Failure to cite sources correctly
- Fabrication
- Using another person's ideas or words without attribution, including re-using a previous assignment
- Unauthorized collaboration
- Sabotaging another student's work

If you are in doubt, consult your instructor.

STUDENT-WELLNESS SERVICES:

- Student Success Essentials: <https://success.rutgers.edu>
- Student Support Services: <https://www.rutgers.edu/academics/student-support>
- The Learning Centers: <https://rlc.rutgers.edu/>
- Rutgers Libraries: <https://www.libraries.rutgers.edu/>
- Bias Incident Reporting: <https://studentaffairs.rutgers.edu/bias-incident-reporting>



- Dean of Students – Student Support Office: <https://success.rutgers.edu/resource/dean-students-student-support-office>
- Office of Veteran and Military Programs and Services: <https://veterans.rutgers.edu>
- Student Health Services: <http://health.rutgers.edu/>
- Counseling, Alcohol and Other Drug Assistance Program & Psychiatric Services (CAPS): <http://health.rutgers.edu/medical-counseling-services/counseling/>
- UWill: free immediate access to teletherapy; you can choose a therapist based on your preferences, including issue, gender, language, ethnicity: <http://health.rutgers.edu/uwill/>
- Office for Violence Prevention and Victim Assistance: www.vpva.rutgers.edu/
- Office of Disability Services: <https://ods.rutgers.edu/>
- Basic Needs Assistance (food, housing, and other essentials): <https://ruoffcampus.rutgers.edu/basic-needs>
- Rutgers Student Food Pantry: <https://ruoffcampus.rutgers.edu/food-pantry>

** All information is subject to change at the discretion of the course coordinator.