



Science Department
Undergraduate Research Manual
(2022-2023 Edition)

RBIO 466/RCHE 466/RPHY 466:
Research Biology 466
Research Chemistry 466
Research Physics 466

RBIO 166/RCHE 166:
Introduction to Undergraduate Research

Course Descriptions:

RBIO/RCHE 166 - Introduction to Undergraduate Research

This course offers an independent, but directed, collaborative course of study involving a specific research agenda in the biology discipline under departmental faculty supervision. Research projects may require literature review, empirical analysis and a written report, poster or oral presentation of the completed research project. Prerequisite: Approval of instructor, department chair and Dean for Natural Sciences and Allied Health is required. Open only to freshman/sophomore science majors and qualified non-majors who have completed at least one semester of fulltime study at Cabrini University. Students must have a 2.00 GPA or higher. May be repeated for credit. Variable hours. Lab fee. Offered fall, spring, or summer. Variable credits

RBIO/RCHE/RPHY 466 – Research Biology/Chemistry/Physics

This course offers an independent, but directed, collaborative course of study involving a specific research agenda in a biology discipline under departmental faculty supervision. Research projects typically require literature review, empirical analysis and a written report, poster or oral presentation of the completed research project. Prerequisite: Approval of instructor, department chair and Dean for Natural Sciences and Allied Health is required. Limited to upper division science majors only with a science GPA of 2.0 or higher. May be repeated for credit, but a maximum of six credits of RBIO/RCHE 466 and BIO/CHE 488 combined may be applied to the major. Lab fee. Offered fall, spring, or summer. Variable credits

How to Enroll:

Only qualified Biology, Biochemistry, or Chemistry majors with a science GPA or 2.0 of higher may enroll. The science GPA includes all majors-level science courses in biology, chemistry, environmental science, and physics. Chemistry majors also include MAT 131 in their science GPA calculation. Students may take RBIO/RCHE 466 in place of the BIO/CHE 488 (Internship) requirement, or they may take this course as an elective/free elective. Enrolling in RBIO/RCHE 466 is not open to all students. A student is either invited to join a research group by a faculty mentor, or a student obtains permission from a faculty mentor in advance of registering for the course.

Registration requires the completion of a RBIO/RCHE 466 form (*see page 6*) which requires specification of project objectives, time period for completion of the project, and date of the final presentation. This form must be signed by the student, the faculty mentor, the department chair, and

the Academic Dean.

When submitted, the student may register for the course in the appropriate section assigned to the faculty mentor.

The RBIO/RCHE/RPHY 466 form (page 6) must be completed for all semesters in which the student is earning credit. Because academic integrity is a key component of ethical standards and expectations for conducting scientific research, any student with more than one academic honesty violation on record will not be permitted to enroll in RBIO/RCHE 166 or RBIO/RCHE/RPHY 466 at any time while a student at Cabrini University. The Instructor will consult with the Assistant Dean for Student Success for this information.

Academic Credits:

The number of credits correlates with the number of hours established between the student and the collaborating faculty member. For each credit, a minimum of 45 hours of research is required. Therefore, if taking this course for three credits, 135 hours of work is expected; if taking this course for four credits, 180 hours of work is expected, etc. Students must keep a log of hours spent on their project which is shared with their faculty mentor on a weekly basis.

Research will take the form of laboratory and computing time, and also include time required to prepare written work (including completion of laboratory notebook) and oral presentations. Students may enroll for up to 12 credits during any given semester, as determined by faculty mentor. Students will be expected to keep a detailed laboratory notebook recording all work. This notebook will be the property of the laboratory in which they work and remain in the laboratory after completion of the course.

Important Notes for Students, Research Mentors, and Academic Advisors:

If taking this course in place of the mandatory internship (BIO/CHE 488) requirement:

Biology majors must complete a minimum of three credits (135 hours). Chemistry and Biochemistry majors must complete a minimum of four credits (180 hours).

In addition, all students will complete a major written research piece (*i.e.*, a substantive research paper or a scientific paper for a peer-reviewed publication), and present their work orally (*i.e.*, before a faculty panel or an oral presentation at a conference).

Abstracts will not take the place of a major written research piece, and poster presentations will not satisfy the oral presentation requirement.

If taking this course as an elective/free elective:

In addition to keeping a well-organized laboratory notebook, students will also present their work orally to their faculty mentor. The oral presentation can be delivered at a formal laboratory meeting scheduled by the faculty mentor, or at a conference (poster not included).

Biology majors may take RBIO 466 as a biology elective to satisfy one of the electives for the Biological Sciences (must have completed a minimum of three credits, 135 hours) or Pre-Medicine tracks. Credits may be taken in one semester or spread over two to three semesters.

Students enrolled in the Molecular Biology & Biotechnology track may not use this course as an elective for the biology major, but can use this course in place of the internship, or as a free elective.

Chemistry and Biochemistry majors may not use RCHE 466 as a Chemistry elective. Students may use this course in place of CHE 488 (minimum of four credits, 180 hours), or as a free elective.

If taking this course over the summer:

Students must enroll for a minimum of one credit when taking this course over the summer. If more than 45 hours are completed, those hours can be rolled over to the fall or spring semesters for RBIO/RCHE/RPHY 466 credit.

Assessment of summer work is determined based on the criteria stated above for internship or elective/free elective credit.

Academic dishonesty record:

Because academic integrity is a key component of ethical standards and expectations for conducting scientific research, any student with more than one academic honesty violation on record will not be permitted to enroll in RBIO/RCHE 166 or RBIO/RCHE/RPHY 466 at any time while a student at Cabrini University. The Instructor will consult with the Assistant Dean for Student Success for this information.



Independent/Directed Study/Undergraduate Research Proposal Form

Student Name: _____ Banner ID#: _____

Campus Mailbox Address: _____

If a Commuter, Student Mailing Address: _____ (Street)

(City, State, Zip)

Course#: _____ Course Title: _____ Credits: _____

Faculty/Supervisor: _____

Begin Date: _____ End Date: _____

Due Date for all Assignments: _____

Please check which type of study this represents, according to the catalogue definition:

Independent Study (499, 599, and EDD 790) - *Advanced students can research a topic of personal academic interest normally not included in the regular course offerings.*

Directed Study (actual course number) - *When students are unable to complete courses required for their major because the course is not being offered as the department advertised. **The Directed Study appears on the transcript as the required, but unavailable, course and uses the "DS" designation in the section code on the student schedule.***

Research Proposal (R-166) - **Freshmen & Sophomore Science Majors Only** - *Research projects typically require literature review, empirical analysis and a written report, poster or oral presentation of the completed research project. **By signing this form the instructor verifies that the student does not have more than one academic dishonesty violation on record.***

Research Proposal (R-466) - *Research projects typically require literature review, empirical analysis and a written report, poster or oral presentation of the completed research project. **By signing this form the instructor verifies that the student does not have more than one academic dishonesty violation on record.***

Reason for Directed/Independent Study or Description of Research agenda:

As the student, I agree to pay \$80 and any additional fees generated by this proposal. I also agree to meet the requirements and to complete the coursework for this Directed/Independent Study/Research Proposal by the due date specified above.

Student's Signature: _____ **Date:** _____

As the faculty member/supervisor, I agree to:

Independent Study:

- Include the learning outcomes, method and criteria for evaluation
- Submit a grade for the student by the _____ of _____ (End Date)

Directed Study:

- Attach a copy of the syllabus organized as a directed study (DS)
- Include the learning outcomes for this study in the syllabus and attach a meeting schedule
- Submit a grade for the student by the _____ of _____ (End Date)

Research Proposal:

- Include the learning outcomes, method and criteria for evaluation
- Assist the student in the completion of the undergraduate research
- Submit a grade for the student by the _____ of _____ (End Date)

Instructor's Signature: (see comments above for R-166/R-466) _____ **Date:** _____

APPROVAL:

Department Chair's Signature: _____ **Date:** _____

Academic Dean's Signature: _____ **Date:** _____

CC: Student, Faculty, Registrar, Department Chair, Academic Dean