

JAMESTOWN COMMUNITY COLLEGE
State University of New York

INSTITUTIONAL COURSE SYLLABUS

Course Title: Biotechnology Research

Course Abbreviation and Number: BIO 2810

Credit Hours: 2

Course Type: Lab

Course Description: Students will be introduced to problem-solving using modern laboratory techniques in molecular biology that were first introduced in courses such as: Principles of Biology, Genetics, and Cell and Molecular Biology. Problem solving draws on the basic techniques of molecular biology used in the study of gene structure and function, including DNA/RNA and plasmid isolation, protein extraction, Southern blotting and Western blotting, PCR, gene cloning, and others. This course provides hands-on experience with the techniques and instrumentation used in the modern biotechnology laboratory.

Prerequisite: ENG 1510 and BIO 2531 or BIO 2560 or BIO 2800 or BIO 2840.

General Education Requirements Met

JCC

Applied Learning

Student Learning Outcomes:

Students who demonstrate understanding can:

1. Critically evaluate, troubleshoot experimental data at a level appropriate for first and second year students.
 2. Demonstrate facility in biotechnology techniques and scientific method.
 3. Demonstrate effective use of safety protocols and procedures, scientific equipments, online databases and software.
 4. Demonstrate professionalism in the documentation of experimental data.
 5. Demonstrate effective verbal scientific communication skills.
 6. Demonstrate effective use of scientific writing.
 7. Demonstrate facility in reading and evaluating scientific literature at a level appropriate for first and second year students.
 8. Effectively apply knowledge and skills to a real-world experience, creative project, or independent intellectual investigation. [JCC Gen Ed – Applied Learning]
 9. Thoughtfully reflect on connections between concepts studies in the classroom & insights gained from an applied learning experience/project. [JCC Gen Ed – Applied Learning]
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Topics Covered:

- DNA Cloning
 - RNA Extraction and Quantification
 - Genomic DNA isolations and quantification
 - DNA fingerprint
 - Automated DNA sequencing and sequence analysis
 - Southern blotting
 - Protein extraction and quantification
 - Western blot
 - Tissue culture
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Information for Students

- Expectations of Students
 - [Civility Statement](#)
 - [Student Responsibility Statement](#)
 - [Academic Integrity Statement](#)
- [Accessibility Services](#)
Students who require accommodations to complete the requirements and expectations of this course because of a disability must make their accommodation requests to the Accessibility Services Coordinator.
- [Get Help: JCC & Community Resources](#)
- [Emergency Closing Procedures](#)
- Course grade is determined by the instructor based on a combination of factors, including but not limited to, homework, quizzes, exams, projects, and participation. Final course grade can be translated into a grade point value according to the following:

A=4.0	B+=3.5	B=3	C+=2.5	C=2	D+=1.5	D=1	F=0
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- Veterans and active duty military personnel with special circumstances (e.g., upcoming deployments, drill requirements, VA appointments) are welcome and encouraged to communicate these to the instructor.
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Effective Date: Fall 2021