



**Cooperative Education II:
From Practicum to Professional Growth
CHEM 3290
Department of Chemistry and Biochemistry**

1. Course Description

This cooperative education course enables students to apply principles of chemistry and biochemistry in a professional workplace setting. Under the supervision of an industry mentor, students complete structured work assignments that involve analyzing and addressing real-world technical challenges while developing technical, organizational, and communication skills. Students receive formal performance evaluations and gain insight into professional expectations and workplace culture. To document their applied learning, students submit a technical report and/or deliver a formal presentation reflecting on their experience and contributions.

2. Course Objectives

This course aims to develop students' professional ability to apply principles of chemistry and biochemistry to analyze and address real-world technical problems while demonstrating technical competency in laboratory, analytical, computational, or process-oriented tasks. Students will integrate theoretical knowledge with practical applications to contribute meaningfully to organizational projects and objectives while demonstrating professional skills such as effective communication, teamwork, time management, and adherence to workplace standards and safety practices. Through structured assignments and formal supervisor evaluations, students will assess their performance and reflect on their professional growth. In addition, students will communicate technical information effectively by preparing a formal written report and/or delivering an oral presentation that documents their work activities, outcomes, and professional development.

3. Eligibility, Prerequisites, and Registration

- Open to Chemistry and Biochemistry majors
- To register for the course CHEM 3290, students must have completed 9 or more credit hours of chemistry or biochemistry courses (courses starting with CHEM) and have an overall GPA ≥ 3.0 . Lab courses are encouraged.
- To register for this course, students must submit an application form (can be found within this webpage) and get approval from the coordinator and the department.

4. Student learning outcomes

At the end of the course, students should be able to:

• Apply principles of chemistry and biochemistry to tasks and challenges encountered in professional workplace settings.
• Integrate classroom knowledge with on-the-job experiences to analyze and address real-world problems, demonstrating critical thinking and lifelong learning.
• Acquire, evaluate, and apply new technical information and skills required in an occupational environment.
• Communicate technical concepts, project outcomes, and workplace contributions effectively through professional written reports and/or oral presentations.
• Assess workplace processes, procedures, and problem-solving strategies relevant to assigned responsibilities.
• Reflect on and articulate professional skills, competencies, ethical responsibilities, and career goals developed during the cooperative education experience, demonstrating career readiness and professional conduct.

5. Skills and Knowledge Expected Upon Entry

The specific skills, technical competencies, and disciplinary knowledge required for successful completion of this cooperative education course are determined by the internship employer in collaboration with the student and faculty oversight, and are aligned with the student's academic preparation in chemistry or biochemistry. Assigned responsibilities reflect the nature of the host organization's operations and may include laboratory experimentation, analytical testing, quality control procedures, data analysis, computational modeling, process optimization, regulatory compliance activities, or other chemistry-related technical functions. Expectations are structured to ensure that students apply foundational concepts from coursework to authentic workplace challenges while progressively developing higher-level problem-solving abilities.

6. Workplace Safety and Ethics

- Employers are expected to provide a safe environment free from recognized hazards, providing necessary safety gear (PPE) and training.
- Students are required to follow all safety procedures, avoid prohibited "horseplay," and immediately report hazards or injuries to their industry supervisors.
- Employers are expected to provide students with clear ethical & policy compliance and necessary training.
- Students are typically required to sign and abide by employer policies, including non-disclosure agreements (NDAs), anti-harassment policies, and social media guidelines.

7. Course Format

- Attendance

This internship is a practicum course. Attendance and work schedule requirements are dictated by the employer. There are no formal classroom attendance requirements with the internship coordinator; however, the internship coordinator may require meetings with the student as needed.

- Course Schedule

Weekly work logs are submitted every two weeks after the internship begins. Other deadlines will be communicated by the internship coordinator as applicable.

- Resources

All course materials, including assignments, can be found on our course Canvas Site. Submission of assignments is also via Canvas.