Bemidji State University

CHEM 4476: Techniques in Biotechnology and Biochemistry

A. COURSE DESCRIPTION

Credits: 2
Lecture Hours/Week: 0
Lab Hours/Week: 0
OJT Hours/Week: *
Prerequisites: None
Corequisites: None
MnTC Goals: None

This course is one of two options for completion of the techniques core requirement for the BCMB major. The structure of the course consists of a combined lecture and lab. The course provides students with opportunities to learn advanced laboratory techniques in biotechnology and biochemistry. Prerequisite(s): CHEM 4471 or BCMB 3074 or BIOL 3074. (Also offered under BCMB 4476)

B. COURSE EFFECTIVE DATES: 08/02/2023 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. The biotechnology major content area will include designing, developing, and manipulating expression vectors and systems for the artificial over-production of proteins.
2. The biochemistry major content area will include in silico biochemistry to determine the structure of macromolecules, and the development of biochemical assays to determine the function of macromolecules.
3. More advanced laboratory concepts of biochemistry and biotechnology.

D. LEARNING OUTCOMES (General)

1. Identify and biochemically analyze macromolecules to determine their structure and function.
2. Develop artificial expression vectors through nucleic acid sequence analysis.
3. Clone genes of interest into their engineered expression vectors.
4. Devise genetic modifications to organisms that can be manipulated to express desired macromolecules that then can be extracted and purified.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted