UNIVERSITY OF WISCONSIN
WHITEWATER

ACADEMIC ASSESSMENT

Chemistry- Biochemistry

Mission Statement

The mission of the Department of Chemistry, as a member of the College of Letters & Sciences, is to:

- Create an environment that supports learning and research;
- Improve student's ability to analyze problems and develop appropriate solutions;
- Establish and maintain a community of scholars and students who aspire to high standards of achievement; and
- Model in ourselves and encourage in our students the ideas of civic responsibility and engagement, as well as personal and professional integrity.

As a science department, we regard our mission to include:

- Teaching students systematic methods for evaluating evidence and information by helping them to build and test scientific hypotheses and theories;
- Fostering students' critical thinking skills such as drawing conclusions, inferring relationships, solving problems, and making predictions about the natural world; and
- Improving science literacy for student citizens, consistent with the philosophy of liberal studies.

As a department of chemistry, we are committed to providing:

- A rigorous, effective, and up-to-date curriculum for chemistry majors and minors, with depth of study for those students who desire to pursue advanced study in or a career related to chemistry or science education;
- Effective and engaging courses for students who choose to take chemistry courses as either part of the breadth of a liberal arts education or whose majors or career goals require them;
- A safe, relevant laboratory environment for practical exploration of chemical principles, methods, and techniques;
- Relevant educational experiences in the chemical sciences through public outreach with emphasis on the UW-Whitewater service area;
- Hands-on learning experiences in all areas of the curriculum which include the partnership of students, faculty, and staff in research and other scholarly activities;
- Well-informed and accurate academic advising through supportive and constructive advising sessions;

- A well-maintained collection of state-of-the-art instruments for student, faculty, and staff use;
- Opportunities tied to environmental sustainability as part of both our curriculum and our research endeavors in order to emphasize responsible citizenry to the global community.
- Support for the development of faculty and staff teaching innovations and research interests; and
- A strong disciplinary identity, in part by maintaining accreditation with the American Chemical Society while providing opportunities for interdisciplinary study and research through collaborations with other disciplines and departments.

Student Learning Outcomes

Student learning outcomes (SLOs) are statements of what a student will know or be able to do when they have completed a program. They represent the knowledge and skills a program has determined are most important for students to gain from that program. The most useful SLOs are specific and measurable so the program can accurately assess the degree to which students have achieved each outcome, and they align with college and institution mission and values. Data on achievement of SLOs is used to make improvements in the program and increase student success.

Chemistry Department Student Learning Goals (Biochemistry):

Subject Matter

- Demonstrate a command of the body of general knowledge relevant to the areas of Organic, Inorganic, Analytical, and Physical chemistry with a major focus on Biochemistry as identified by the American Chemical Society.
- Demonstrate an understanding of major concepts and themes in Biochemistry, such as the *central dogma* in Biochemistry that includes DNA replication, transcription of mRNA transcription, and translation of proteins.
- Demonstrate an understanding of the fundamental chemical and physical laws or theories as applied to biology, such as those found in the fields of kinetics and thermodynamics as applied to enzyme chemistry and metabolism.

Cognitive Development

- Think critically and solve problems creatively.
- Read and understand representative scientific literature.
- Present effectively and articulately in both oral and written platforms.
- Understand the frontier developments in biochemistry and related career opportunities in order to make informed decisions about future studies and career goals.

Skills

- Apply the scientific method to test hypotheses. Collect data precisely and accurately. Analyze data and report results scientifically in both oral and written formats.
- Perform instrument calibrations and sample treatment. Apply various and appropriate methods to analyze samples.
- Demonstrate an understanding and practice of safe laboratory procedural techniques and subsequent waste disposal.
- Conduct thorough reviews of biochemistry literature and share results with peers and colleagues in the field.
- Be a member and a team player to fulfill a group project.