

Categorization of Educational Outcomes

This table shows how the educational outcomes in the department mission statement can be classified in several categories.

Mission Statement Educational Outcomes	Category
<p>A. All of our students, both majors and non-majors, should be able to demonstrate an ability to:</p> <ol style="list-style-type: none"> 1. recall basic chemical knowledge. 2. understand chemistry as an important way of interpreting and understanding our world. 3. do creative problem solving using the technical, scientific, and intellectual skills that they have acquired. 4. organize and access scientific knowledge using chemical understanding, tabular data, graphs, mathematical relationships, and structural representations. 5. learn to appreciate science, and develop attitudes and virtues appropriate for their future role of shaping contemporary society. 	<p>Knowledge</p> <p>Knowledge-integrative</p> <p>Problem-solving (skill)</p> <p>Problem-solving (skill)</p> <p>Virtue</p>
<p>B. Students graduating with a major in chemistry or biochemistry should be able to demonstrate an ability to:</p> <p>B-i: display proficiency in applying scientific methods in the laboratory:</p> <ol style="list-style-type: none"> 1. design experiments to answer questions or test hypotheses. 2. perform reliable experiments 3. develop the synthetic skills to create new knowledge by deriving relationships, modeling, predicting, etc. 4. analyze the results and draw conclusions from experiments. 5. report on the experiments and the results in written and oral formats. 6. work as a participating member of a team. 	<p>Laboratory-knowledge</p> <p>Laboratory-skill</p> <p>Laboratory-synthesis (skill, knowledge)</p> <p>Laboratory-analysis (skill, knowledge)</p> <p>Laboratory-communication</p> <p>Laboratory-(skill, virtue)</p>

Mission Statement Educational Outcomes	Category
<p>B-ii: develop the specific technical, scientific, and intellectual skills necessary to facilitate creative problem solving:</p> <ol style="list-style-type: none"> 1. computational skills: to facilitate an appropriate use of mathematics as a way of expressing physical and chemical relationships. 2. laboratory skills: to become proficient in instrumental techniques of gathering data, to separate and purify substances, and to interpret spectral data as a means of determining chemical structures and sample purity. 3. library skills: to increase proficiency in searching the literature. 4. computer skills: to facilitate an appropriate use of computers in computations, in laboratory, and literature searching. 5. communication skills: to present ideas effectively in appropriate ways such as writing laboratory reports, presenting oral reports, and presenting information. 	<p>Problem-solving (skill)</p> <p>Laboratory-skill</p> <p>Literature research-skill</p> <p>Computer-skill</p> <p>Communication-skill</p>
<p>B-iii: develop appreciation for chemistry and its appropriate role in shaping contemporary society.</p> <ol style="list-style-type: none"> 1. understand the methods and limitations of chemistry (science), the nature of chemical theories and facts, and the developmental character of chemistry/bio-chemistry by exposure to the current literature, the departmental seminar program, and the departmental capstone course. 2. view themselves positively as Christians equipped with knowledge, skills, attitudes and virtues that will allow them to exercise responsible service as students and in their future scientific profession. <ul style="list-style-type: none"> • integrate virtues such as honesty, diligence, and stewardship into their scientific practice. • foster enthusiasm for communicating chemistry and biochemistry. • foster the inclusion of under-represented groups in chemistry and biochemistry. • provide a collegial and supportive environment for fellow chemistry students, both male and female. 	<p>Knowledge-integrative</p> <p>Virtue</p> <p>Virtue</p> <p>Virtue</p> <p>Virtue</p> <p>Virtue</p>