

## Biology-Chemistry Curriculum, Outcomes and Assessment Diagram

Institutional Learning Outcome	Department Learning Outcomes	Program Learning Outcomes	Introduced	Reinforced	Mastery	Measure
<p><i>Learning: Informed by our Christian Faith:</i> Members of the PLNU community will display openness to and mastery of foundational knowledge and perspectives; think critically, analytically, and creatively; and communicate effectively.</p>	<p><b>Learning/Teach</b> Students will demonstrate an understanding of the process of science, and of the concepts and theories of biology across a broad range of organizational levels: molecular, cellular, organismal, and ecological.</p>	<p>Students will demonstrate an understanding of the process of science, and of the concepts and theories of biology across a broad range of organizational levels: molecular, cellular, and organismal.</p>	<p>BIO210 BIO212</p>	<p>BIO345 BIO380</p>	<p>BIO450  <u>Electives:</u> Students take two of these courses:  BIO315, 350, 390, 400, 420</p>	<p>Students will take the ETS Major Fields Test in Biology as part of the capstone course in biology, BIO 497. The overall group mean on the ETS exam will be <math>\geq 75</math>th percentile and at least 50% of our students will have an overall score <math>\geq 60</math>th percentile. Additionally, the same criteria established for the overall ETS score will be applied to each of the 3 sub-disciplines, which are Cell, Genetic &amp; Molecular, and Organismal. (Every year)</p>
	<p>Students will demonstrate a broad knowledge of chemistry and develop an increasingly sophisticated understanding of chemistry related concepts and theories.</p>	<p>Students will be able to demonstrate a foundational knowledge of the principles of physical, organic, and inorganic chemistry, including the structure of matter, fundamental chemical reactions, and the factors that regulate such processes.</p>	<p>CHE151 CHE152 CHE153 CHE294</p>	<p>CHE213 CHE300</p>	<p>CHE325 CHE466 CHE450  Upper-division chemistry electives</p>	<p>ETS Exam ACS Exam G.Chem ACS Exam Organic ACS Exam Thermo</p>
		<p>Students will understand the basic principles and operating procedures of the major instruments used in chemical characterization and analysis.</p>	<p>CHE294L</p>	<p>CHE304L CHE213L Upper-division chemistry electives</p>	<p>CHE495 CHE499</p>	<p>Certification by Faculty</p>

<p><i>Growing: In a Christian Faith Community:</i> Members of the PLNU community will demonstrate God-inspired development and understanding self and others and live hospitably within complex professional, environmental and social contexts.</p>	<p><b>Growing/Shape</b> Students will develop career goals and define a path by which to achieve these goals. Students will develop a rationally defensible integration of science and faith.</p>	<p>Students will participate in the life of the department in Biology/Chemistry clubs or in various positions of responsibility such as graders, tutors, and teaching assistants.</p>	<p>This occurs in the sophomore, junior, and senior years in the biology and/or chemistry departments.</p>			<p>Student participation in Biology/Chemistry clubs and in positions of responsibility will be tracked and recorded. At least 80% of our students will participate in one of these positions during their time at PLNU. (Every year)</p>
		<p>Students will develop career goals and define a path by which to achieve these goals.</p>	<p>This occurs via faculty advising throughout the student's education.</p>			<p>In order to be cleared for course registration each semester, students will answer a questionnaire regarding their career goals and their plan by which to achieve those goals and then discuss the questionnaire with their faculty advisor. (Every semester)</p>
		<p>Students will develop a rationally defensible integration of science and faith.</p>	<p>BIO210 BIO211</p>	<p>BIO345</p>	<p>BIO497</p>	<p>During their senior year, students will defend the integration of their faith with various scientific topics via written and oral presentations. (Every year)</p>
<p><i>Serving: In a Context of Christian Faith:</i> Members of the PLNU community will engage in actions that reflect Christian discipleship in a context of communal service and collective responsibility, serve both locally and globally in a vocational and social setting.</p>	<p><b>Serving/Send</b> Students will gain entry to professional or graduate schools, or to science-related careers.</p>	<p>Students will gain entry to professional or graduate schools, or to science-related careers.</p>	<p>Preparation for future careers occurs throughout the curriculum in every class.</p>			<p>After graduation, alumni will be tracked and data regarding their postgraduate education and profession will be recorded. Success rates for alumni who apply for graduate or professional schools will be &gt; 75% and the percentage of graduates who obtain jobs in science-related occupations will be &gt;70%. (Every 5 years)</p>