| Point Loma Nazarene University | | LO 1 | LO 2 | LO 3 | LO 4 | LO 5 | LO 6 | LO 7 |
|---|---|---|---|---|---|---|---|---|
| **Biology-Chemistry B.S. Curriculum Map** | | 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 (M), cellular (C), and organismal (O). | Students will demonstrate a foundational knowledge of the principles of physical, organic, analytical, and inorganic chemistry, including the structure of matter, fundamental chemical reactions, and the factors that regulate such processes. | Students will understand the basic techniques of chemical investigation and the fundamental principles and operating procedures of the major instruments used in chemical characterization and analysis. | Students will participate in the life of the departments of Biology and/or Chemistry by involvement in science clubs and/or in various positions of responsibility such as graders, tutors, and teaching assistants. | 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 | Students will gain entry to professional or graduate schools, or to science-related careers. |
| Course | Course Title | | | | | | | |
| **LOWER-DIVISION REQUIREMENTS** | | **M O C** | **P O A I** | | | | | |
| BIO 210 | Cell Biology and Biochemistry | I I | | | | | I | |
| BIO 211 | Ecological and Evolutionary Systems | I | | | | | I | |
| BIO 212 | Organismal Biology | I | | | | | | |
| CHE 151 | General Chemistry Tutorial *(can be waived)* | | I I I I | | | | | |
| CHE 152 | General Chemistry I | | I I I I | I | | | | |
| CHE 153 | General Chemistry II | | I I I I | I | | | | |
| CHE 213 | Analytical Chemistry | | D/M | I/D | | | | |

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|---|---|---|---|---|---|---|---|---|
| CHE 294 | Organic Chemistry I | | I/D | I | | | | |
| **UPPER-DIVISION REQUIREMENTS** | | **M O** | **C P I** | **O** | **A** | | | |
| BIO 345 | Genetics | D D D | | | | | D | |
| BIO 380 | Molecular Biology | D/M D | | | D | | | |
| BIO 497 | Biology Seminar | | | | | | M | |
| CHE 304 | Organic Chemistry II | | I/D | I/D | | | | |
| CHE 325 | Physical Chemistry I | | D/M | D/M | | | | |
| CHE 466 | Advanced Inorganic Chemistry I | | D/M | | | | | |
| BIO 450/CHE 450 | Advanced Biochemistry | M M | M | D/M | | | | |
| ***One course from:*** | | **M O** | **C P I** | **O** | **A** | | | |
| CHE 351 | Organic Qualitative Analysis | | M | M | | | | |
| CHE 326 | Physical Chemistry II | | D/M | | | | | |
| CHE 370 | Instrumental Analysis | | M | M | | | | |
| CHE 453 | Advanced Organic Chemistry | | M | | | | | |
| CHE 468 | Advanced Inorganic Chemistry II | | D/M | | | | | |
| ***Two courses from:*** | | **M O** | **C** | | | | | |

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|---|---|---|---|---|---|---|---|---|
| BIO 301 | Research Methodology | D D D | | | | | | |
| BIO 315 | Microbiology | D D | | | | | | |
| BIO 350 | Advanced Cell Biology | M M | | | | | | |
| BIO 390 | Immunology | M M M | | | | | | |
| BIO 400 | Developmental Biology | M M D | | | | | M | |
| BIO 420 | Vertebrate Physiology | D D/M | | | | | | |
| **Extracurricular Activities** | | | | | | | | |
| Faculty Advising (required for registration clearance) | | | | | | I, D, M | | I |
| Pre-Health Advising | | | | | | D, M | | D |
| Pre-Teaching Advising | | | | | | D, M | | D |
| Undergraduate Research & Internships | | M M M | | M | | D, M | | D |
| Participation in science clubs or as a grader, TA, or tutor | | | | | | D, M | | D |
| Post-baccalaureate Path | | | | | | | | M |