

## Life Sciences Track – 33 credits

COURSE	CREDITS	COURSE DESCRIPTION/PRE-REQUISITES	SEMESTER TYPICALLY OFFERED
<b>BIOL 106</b>	4	<b>[BSCI] Introductory Biology: Organismal Biology</b> Prerequisite: One of the following -- a minimum ALEKS math placement score of 40%, MATH 100 with an S, MATH 101 with a C or better, MATH 103 or higher, BIOLOGY 103 with a C or better, BIOLOGY 102, BIOLOGY 120, or 3 credits of biology with a lab. One semester of a two semester sequence (BIOLOGY 106/107 or BIOLOGY 107/106) for science majors and pre-professional students. Biology of organisms; plants, animals, ecology and evolution.	Fall, Spring, and Summer
<b>BIOL 107</b>	4	<b>[BSCI] Introductory Biology: Cell Biology and Genetics</b> Course Prerequisite: Minimum 2 credits 100 level CHEM or concurrent enrollment. First or second semester of a one-year sequence (BIOLOGY 106/107 or BIOLOGY 107/106) for science majors and pre-professional students. Cell biology and genetics of prokaryotes and eukaryotes.	Fall, Spring, and Summer
<b>CHEM 101</b>	4	<b>[PSCI] Introduction to Chemistry</b> Course Prerequisite: MATH 103 or a minimum ALEKS math placement score of 45%, or credit for or concurrent enrollment in MATH 105, 106, 107, 108, 140, 171, 172, 182, 201, 202, ENGR 107, STAT 205, or 212. Atomic and molecular structure, elementary organic nomenclature and reactions, quantitative relationships, periodicity, states of matter, solutions, acids, bases, pH, equilibrium, applications to life sciences. Not recommended as preparation for CHEM 105.	Fall, Spring, Summer
<b>CHEM 102</b>	4	<b>Chemistry Related to Life Sciences</b> Course Prerequisite: CHEM 101 with a C or better, or CHEM 105 with C or better. Organic functional groups and their reactions; thermodynamics, kinetics, and redox reactions, polymers, macro-molecules; carbohydrates, lipids, proteins, enzymes, nucleic acids, hormones, applications to life sciences.	Fall, Spring, Summer
<b>BIOL 301</b>  <b>or</b>  <b>MBioS 301</b>	4    4	<b>General Genetics</b> Course Prerequisite: BIOLOGY 106 or 120; BIOLOGY 107; CHEM 101 or 105; CHEM 102 or 106. Principles of modern and classical genetics. (Crosslisted course offered as MBIOS 301, BIOLOGY 301). <hr/> <b>General Genetics</b> Course Prerequisite: BIOLOGY 106 or 120; BIOLOGY 107; CHEM 101 or 105; CHEM 102 or 106. Principles of modern and classical genetics. (Crosslisted course offered as MBIOS 301, BIOLOGY 301).	Both typically offered: Fall, Spring, and Summer

<b>BIOL 335</b>	3	<b>[M] Genome Biology</b> Course Prerequisite: BIOLOGY 301. Comparative analysis of genomes from bacteria to humans including methods for sequencing, genotyping, annotation of genomes, population genetics and evol	Fall
<b>BIOL 340</b>	3	<b>Introduction to Mathematical Biology</b> Course Prerequisite: MATH 140 with a C or better, or MATH 172 with a C or better, or MATH 182 with a C or better; BIOLOGY 101, BIOLOGY 102, BIOLOGY 106, or BIOLOGY 107. Mathematical biology and development of mathematical modeling for solutions to problems in the life sciences. (Crosslisted course offered as MATH 340, BIOLOGY 340).	Spring
<b>MBioS 478</b>	3	<b>Bioinformatics</b> Course Prerequisite: MBIOS 301, 303, or CPT S 355. Computer analysis of protein and nucleic acid sequences, functional genomics and proteomics data; modeling biological networks and pathways. Credit not granted for both MBIOS 478 and MBIOS 578. Recommended preparation: Introductory genetics or biochemistry coursework. Offered at 400 and 500 level.	Fall, Spring, and Summer
<b>BIOL 474</b>	4	<b>Computational Biology</b> Course Prerequisite: BIOLOGY 301; MATH 140 or 171; STAT 212, 412, or PSYCH 311. Theory and current literature on a wide range of computational techniques used to address and solve problems in biology; a practical introduction to R/python as scientific languages useful in the solution of problems in biology.	Typically offered Odd Years – Spring.