

# BIOLOGICAL SCIENCES REQUIRED CORE COURSES (40 CREDITS)

BIOL 181 General Biology I (5)  
CHEM 181 General Chemistry I (4) / Lab (1)  
BIOL 213 Introductory Biostatistics (4)

BIOL 182 General Biology II (5)  
CHEM 182 General Chemistry II (4) / Lab (1)  
BIOL 321 Genetics (5)

BIOL 183 General Biology III (5)  
CHEM 183 General Chemistry (4) / Lab (1)  
BIOL 499S Senior Seminar (1)

updated  
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## Structure / Function Group

BIOL 343 Plant Anatomy (5)  
BIOL 353 Integrative Anatomy (6)  
BIOL 354 Developmental Biology (5)\*  
BIOL 355 Human Anatomy & Physiology (5)\*\*#  
BIOL 356 Human Anatomy & Physiology (5)\*\*#  
BIOL 422 Immunology (5)\*  
BIOL 423 Techniques in Immunology & Virology (5)\*  
BIOL 426 Medical Microbiology (3)  
BIOL 426 Medical Microbiology Lab (2)  
BIOL 441 Plant Physiology (5)\*  
BIOL 454 Histology (3)  
BIOL 455 Integrative Animal Physiology (5)#  
BIOL 457 Fundamentals of Neuroscience (5)\*  
BIOL 459 Winter Biology (4)\*

## Molecular & Cell Group

BIOL 323 Microbiology (5)  
BIOL 354 Developmental Biology (5)\*  
BIOL 421 General Virology (5)\*  
422 Immunology (5)\*  
BIOL 423 Techniques in Immunology & Virology (5)\*  
BIOL 425 Molecular Biotechnology (5)  
BIOL 428 Nutrigenomics (5)  
BIOL 430 Cell Biology (5)  
BIOL 431 The Cell Biology of Cancer (3)  
BIOL 431LAB The Cell Biology of Cancer Lab (2)  
BIOL 441 Plant Physiology (5)\*  
BIOL 457 Fundamentals of Neuroscience (5)\*

## Ecology Group

BIOL 360 General Ecology (5)  
BIOL 362 Biomes of Pacific Northwest (4)  
BIOL 377 Regional Natural History (2)\*\*#  
BIOL 377 Regional Natural History Lab (3)\*\*#  
BIOL 420 Environmental Microbiology (5)  
BIOL 459 Winter Biology (4)\*  
BIOL 462 Wildlife & Fisheries Ecology (5)  
BIOL 463 Limnology (5)  
BIOL 464 Terrestrial Plant Ecology (5)  
BIOL 466 Conservation Biology (5)  
BIOL 467 Biological Field Techniques (5)

## General Biology Electives & Variable Credit Courses

BIOL 413 Advanced Biostatistics (5)\*  
BIOL 295 / 495 Research (1-6)  
BIOL 298 / 398 / 498 Special Topics (1-6)  
BIOL 396 / 496 Individual Study (1-6)  
BIOL 405 Current Topics in Biology (2-5)  
BIOL 490 Cooperative Education (1-12)  
BIOL 492 Lab Experience Teaching Bio. Science (2)

## Biological Diversity Group

BIOL 322 Introductory Microbiology (5)  
BIOL 323 Microbiology (5)  
BIOL 341 Plant Taxonomy (5)  
BIOL 344 Dendrology (4)  
BIOL 351 General Entomology (5)  
BIOL 352 Parasitology (5)  
BIOL 421 General Virology (5)\*  
BIOL 443 Mycology (5)  
BIOL 444 Algae and Bryophytes (5)  
BIOL 445 Field Mycology (5)  
BIOL 450 Ichthyology (4)  
BIOL 451 Herpetology (4)  
BIOL 452 Ornithology (4)  
BIOL 453 Mammalogy (5)

## Evolution Group

BIOL 353 Integrative Anatomy (6)  
BIOL 371 Paleobiology (4)  
BIOL 421 General Virology (5)\*  
BIOL 465 Biology of Animal Behavior (4)  
BIOL 470 Mechanisms of Evolution (5)

ALONG WITH CORE COURSES, CHOOSE FROM  
COURSE GROUPS ACCORDING TO YOUR  
SPECIALIZATION & DEGREE REQUIREMENTS

\*Course is in at least one other group & may be counted only once. \*\*BIOL 355 must be paired with BIOL 356. A student cannot receive credit for 355/356 and 305/306. \*\*\*BIOL 377 must be paired with BIOL 377Lab #As of Fall 2014, students can only receive credit toward their major for BIOL 355/356 OR BIOL 455 NOTE: See CWU catalog and Major Advisor regarding variable credit courses (incl. BIOL 405, which counts in multiple groups) for info on pre-reqs & repeating for credit.

B.S. Ecology and Evolutionary Biology Specialization		
Biology Core Requirements	40 Credits	BIOL 181, 182, 183; CHEM 181, 182, 183 & Labs; BIOL 213; BIOL 321; BIOL 499S
Additional Required Courses	15 Credits	CHEM 361 & Lab <b>AND</b> MATH 170 OR MATH 172 <b>AND</b> PHYS 111 <b>OR</b> PHYS 181 <b>OR</b> PHYS 121
	19-30 Credits	<b>ONE course from EACH of the following course groups:</b> Biological Diversity, Ecology, and Evolution. ONE additional course from Ecology <b>OR</b> Evolution. ONE course from Molecular/Cell <b>OR</b> Structure/Function
Department-Approved Electives	15-26 Credits	Choose from the Ecology, Evolution, Molecular/Cell, Structure/Function, and Biological Diversity Group (or non-biology science courses as approved by your advisor).
<b>TOTAL CREDITS</b>	<b>100</b>	<i>NOTE: Courses can be counted only once.</i>

B.S. Biomedical Science Specialization		
Biology Core Requirements	40 Credits	BIOL 181, 182, 183; CHEM 181, 182, 183 & Labs; BIOL 213; BIOL 321; BIOL 499S
Physics Sequence	15 Credits	Choose from PHYS 111, 112, 113 series <b>OR</b> PHYS 181, 182, 183 series <b>OR</b> the PHYS 121, 122, 123 series
Additional Required Courses	19-28 Credits	CHEM 361 & Lab, CHEM 362
		THREE courses from the Ecology, Evolution, Molecular/Cell and Structure/Function Course Groups <i>Each course must come from a different group.</i>
Department-Approved Electives	17-26 Credits	Choose from the Ecology, Evolution, Molecular/Cell, Structure/Function, and Biological Diversity Group (or non-biology science courses as approved by your advisor).
<b>TOTAL CREDITS</b>	<b>100</b>	<i>NOTE: Courses can be counted only once.</i>

B.S. General Specialization		
Biology Core Requirements	40 Credits	BIOL 181, 182, 183; CHEM 181, 182, 183 & Labs; BIOL 213; BIOL 321; BIOL 499S
Additional Required Courses	10 Credits	CHEM 361 & Lab --AND-- PHYS 111 <b>OR</b> PHYS 181 <b>OR</b> PHYS 121
	20-30 Credits	<b>ONE course from EACH of the following groups:</b> Biological Diversity, Ecology, Evolution, Molecular/Cell, and Structure/Function
Department-Approved Electives	20-30 Credits	Choose from the Ecology, Evolution, Molecular/Cell, Structure/Function, and Biological Diversity Group (or non-biology courses as approved by your advisor)
<b>TOTAL CREDITS</b>	<b>100</b>	<i>NOTE: Courses can be counted only once.</i>

CWU  
Biological Sciences

B.S. & B.A. Major  
Degree Options

B.S. Molecular and Cell Biology Specialization		
Biology Core Requirements	40 Credits	BIOL 181, 182, 183; CHEM 181, 182, 183 & Labs; BIOL 213; BIOL 321; BIOL 499S
Additional Required Courses	21 Credits	BIOL 425, BIOL 430, CHEM 361 & Lab, CHEM 362, CHEM 431
	12-19 Credits	ONE course from the Molecular/Cell Group TWO courses from the Ecology, Evolution or Structure/Function Groups. <i>NOTE: Courses must come from different groups.</i>
Department-Approved Electives	20-27 Credits	Choose from the Ecology, Evolution, Molecular/Cell, Structure/Function, and Biological Diversity Group (or non-biology courses as approved by your advisor).
<b>TOTAL CREDITS</b>	<b>100</b>	<i>NOTE: Courses can be counted only once.</i>

B.A. Biology Major		
Biology Core Requirements	40 Credits	BIOL 181, 182, 183; CHEM 181, 182, 183 & Labs; BIOL 213; BIOL 321; BIOL 470 and BIOL 499S
Additional Required Courses	5 Credits	CHEM 361 Organic Chemistry I (3 credits) CHEM 361LAB Organic Chemistry I Laboratory (2 credits)
Department Approved Electives	18-26 Credits	<b>ONE course from EACH of the following groups:</b> Biological Diversity Ecology Evolution Molecular and Cell Structure/Function
<b>TOTAL CREDITS</b>	<b>63-71</b>	<i>NOTE: Courses can be counted only once.</i>