

2013-2014 B.S. Biology – Molecular Biology Concentration

NAME _____ ID# _____

UNIVERSITY CORE

COLLEGE CORE

A. Core Foundations

CORE 101 _____ 3
 CORE 102 _____ 3
 CORE 103* _____ 3
 CORE 201 _____ 3
 CORE 202 _____ 3

NOTE: Courses listed in multiple areas can only be used to fulfill a single area requirement.

Students can use only one course with their major prefix to fulfill core requirements.

*** Honors course – will replace CORE 101 & 102 for those students in the RU honors program**

B. Core Skills & Knowledge

Courses must be from different disciplines:
MATHEMATICAL SCIENCES (3 SH)
 MATH 119, 138, or 151 _____ 3
NATURAL SCIENCES (4 SH)
 CHEM 101 _____ 4
HUMANITIES (3 SH)
 _____ 3
 One of the following: ENGL 200, HIST 101, 102 PHIL 111, 112, 114; POSC 110; RELN 111, 112, 200, 202, 206
VISUAL & PERFORMING ARTS (3 SH)
 _____ 3
 One of the following: ART 111, 215, 216 CVPA 266 DNCE 111 MUSC 100, 121, 123 THEA 100, 180
SOCIAL/BEHAV. SCIENCES (3 SH)
 _____ 3
 One of the following: ANSC 101, APST 200 ECON 105, 106 GEOG 101, 102, 103 HIST 111, 112 POSC 120;

A. National & International Perspectives

Courses must be from different disciplines:
U. S. PERSPECTIVES (3 SH)
 _____ 3
 One of the following: APST 200 ECON 101, 105, 106, ENGL 203 GEOG 201, 202, 203 HIST 111, 112 POSC 120, SOCY 110
GLOBAL PERSPECTIVES (3S H)
 _____ 3
 One of the following: ENGL 201, 202 FORL 103; CVPA 266, GEOG 101, 102, 140, 280 HIST 101, 102 INST 101 ITEC 112 PEAC 200 RELN 112, 205, SOCY 121, THEA 180 WMST 101

B. Supporting Skills & Knowledge

NATURAL SCI. OR MATHEMATICAL SCIENCES (3-4 SH)
 STAT 219 _____ 3
HUMANITIES, VISUAL & PERFORMING ARTS, OR FOREIGN LANGUAGES (3-4 SH)
 _____ 3-4
 One of the following: ENGL 200 HIST 101, 102 PHIL 111, 112, 114 POSC 110; RELN 111, 112, 203, 206 Or ART 111, 215, 216; CVPA 266; DNCE 111 MUSC 100, 121, 123 THEA 100, 180 Or CHNS 101: 102, 201: 202 FORL 100, 109, 200, 209, 210, 309, 409; FREN 100, 200:210, 300, 320 GRMN 100, 200: 210, 300 LATN 101, 201, 350; RUSS 100, 200, 210, 300, SPAN 101: 102, 201, 202
SOCIAL/ BEHAV. SCI. OR HEALTH & WELLNESS (3 SH)
 _____ 3
 One of the following: ANSC 101, APST 200 ECON 105, 106 GEOG 101, 102, 103 HIST 111, 112 POSC 120 PSYC 121 RELN 205 SOCY 110, 121 HLTH 111, 200 NURS 111 NUTR 214 RCPT 200

Molecular Biology CONCENTRATION

BIOL 160 _____ (2)
 BIOL 460 _____ (2)
 OR
 4 hours of BIOL 460 (2:2)
 BIOL 131 _____ (4)
 BIOL 132 _____ (4)
 BIOL 231 _____ (4)
 BIOL 232 _____ (4)
 CHEM 101 _____ (4)
 CHEM 102 _____ (4)
 STAT 219 _____ (3)
 MATH 119/138/151 _____ (3)
 BIOL 408 _____ (4)
 BIOL 450 _____ (4)
 BIOL 471 _____ (4)
 BIOL 472 _____ (3)

Introductory Seminar in Biology
 Advanced Seminar in Biology
 Ecology and Adaptation
 Biology of Cells and Microorganisms
 Genetics, Evolution, and Development
 Organismal Biology
 General Chemistry
 General Chemistry
 Statistics for Biology
 Math Core Curriculum see above
 Principles of Microbiology
 Molecular Biology
 Biochemistry
 Biochemistry

Prerequisites

All BIOL prerequisites must be C or higher
 F/S Freshmen only
 F/S BIOL 131, 132, 231, and 232 (232 may be concurrent)
 F/S
 F/S 131(BIOL Majors) or C or better in CHEM 101
 F/S BIOL 132
 F/S BIOL 131, 132, and 231
 F/S/SU CHEM 101
 F/S/SU
 F/S/SU
 F/S BIOL 132 and 231
 F CHEM 102 & BIOL 231 or BIOL 334
 F BIOL 105 or 132; CHEM 302
 S BIOL 471

Concentration elective hours (15-19 Hours): Students must select either 15 credits hours from the courses listed below or 11 credit hours from the courses listed below in combination with 8 hours of physics courses chosen from (PHYS 111:112 or PHYS 221: 222)

PHYS 111:112 _____
 OR
 PHYS 221:222 _____
 BIOL 301) Bioethics _____ (2/3)
 OR
 PHIL 310 Professional Ethics _____ (4)
 BIOL 337 _____ (4)
 BIOL 383 _____ (4)
 BIOL 409 _____ (4)
 BIOL 410 _____ (4)
 BIOL 419 _____ (3)
 BIOL 432 _____ (3)
 BIOL 430 _____ (4)
 BIOL 474 or CHEM 474 (1)
 BIO 491 _____ (1-6)
 BIOL 492 _____ (1-6)
 BIOL 495 _____ (1-6)

General Physics
 Physics
 Immunology
 Molecular Forensic Biology
 Virology
 Human Anatomy Physiology for Science Majors
 Introduction to Molecular Bioinformatics
 The Eukaryotic Cell
 Genes and Development
 Biochemistry Laboratory
 Directed Study and Research
 Undergraduate Research
 Internship in Biology

F/S MATH 137 or equivalent
 F/S MATH 151
 S BIOL 132:232
 S'11 every other S BIOL 231 or BIOL 471/472 or instr. perm.
 F/S BIOL 132:231
 F' 10 every other F BIOL 231 or CHEM 101:102
 F' 10 every other F STAT 200 & BIOL132:231 & CHEM 102, or BIOL 471/472, or inst. prm.
 S' 10 every other S BIOL 132 & CHEM 102
 F/S 8 cr. in BIOL, 2.5 GPA in BIOL, Dept. chair & Inst. approval
 F/S 8 cr. in BIOL, 2.5 GPA in BIOL, Dept. chair & Inst. approval
 F/S 16 credit hrs. lab science, 2.5 BIOL GPA, Dept. chair approval

Sample Schedule B.S. Biology – Molecular Biology 13/14

A concentration in Molecular Biology will prepare a student to answer questions about living organisms and living systems using a set of skills that focus on the molecules and molecular processes specific to living organisms. This concentration is recommended for students who are considering doing graduate research in almost any discipline in Biology, students who are considering the medical profession or students who are interested in pursuing careers in biological research

Fall Semester		Spring Semester	
Freshman Year	Cr.	Freshman Year	Cr.
University Core A: Core 101	3	University Core A: Core 102	3
BIOL 131	4	BIOL 132 "C" or better in 131(majors) or C or better in CHEM 101	4
CHEM 101	4	CHEM 102 (S ONLY) CHEM 101	4
BIOL 160	2	CORE	3
MATH 119, 138 or 151	3	CORE	3
University 100	1		
	17		17
Declared Biology majors must earn a grade of "C" or better in BIOL 131, 132, 231, 232, before admission to biology electives requiring these courses as prerequisites. Students who enter the major as a freshman must take BIOL 160, those who transfer or change majors after their freshman year will take (4) hours of BIOL 460 instead.			
Sophomore Year	Cr.	Sophomore Year	Cr.
University Core A: Core 201	3	University Core A: Core 202	3
BIOL 231 "C" or better in BIOL 132 and 160	4	BIOL 232 "C" or better in BIOL 231 and 160	4
CHEM 301 (F Only) CHEM 102 (B.S. Requirement)	4	CHEM 302 (S Only) CHEM 301 (B.S Requirement)	4
CORE	3	STAT 219	3
	14		14
CORE 101, 102, 201, and 202 must be completed in succession. Students should complete CORE 202 prior to their Junior year.			
Junior Year	Cr.	Junior Year	Cr.
BIOL 471 (F ONLY) BIOL 105 or 132; CHEM 302	4	BIOL 472 (S ONLY) BIOL 471	3
BIOL 450 (F ONLY) CHEM 102 & BIOL 231 or BIOL 334	4	BIOL 408 BIOL 132 and 231	4
Required BIOL elective or PHYS course	4	Required BIOL elective or PHYS course	4
CORE	3	CORE	3
	15		14
Senior Year	Cr.	Senior Year	Cr.
BIOL 460 BIOL 131, 132, 231, and 232	2	Required BIOL elective for major	4
Required BIOL elective for major	4	CORE	3
Required BIOL elective for major	4	General Elective to reach 120 credit hours	3
CORE	3	General Elective to reach 120 credit hours	3
General Elective to reach 120 credit hours	3		
	16		13

B.S. Requirements: (8 Hours)

CHEM 301 _____ (4) Organic Chemistry

F CHEM 102

CHEM 302 _____ (4) Organic Chemistry

S CHEM 302

Graduation Requirements: Students must attain a minimum 2.0 in major and overall GPA in order to graduate. Major GPA is calculated using grades received in Biology 131, 132, all Biology courses 200 level or higher, all courses outside of Biology used as electives (including: Chem 471:472 and Physics if used as elective) and/or any course used as an elective by academic petition. Students are required to complete a minimum of 120 credit hours.