

**BACHELOR OF SCIENCE IN PHYSICS WITH A BIOLOGY MINOR
RECOMMENDED COURSE SEQUENCE - EFFECTIVE SPRING 2014**

Year	Fall Semester	Spring Semester	Sum mer	Credits
Freshman	PHYS 1100 Fun of Physics PHYS 2303 Contemporary Physics MATH 2413 or MATH 2417 Calculus 1** CHEM 1311 General Chemistry 1 CHEM 1111 Chemistry Laboratory 1 RHET 1302 Rhetoric UNIV 1010 Freshman and NATS 1101 1st year NSM Seminar	PHYS 2325 Mechanics or PHYS 2421 Honors Physics I* PHYS 2125 Mechanics Laboratory MATH 2414 or MATH 2419 Calculus 2** CHEM 1312 General Chemistry 2 CHEM 1112 Chemistry Lab 2 HUMA 1301 Exploration of the Humanities		Fall - 16 Spring - 15-16 Total Hrs - 31-32
Sophomore	PHYS 2326 EM and Waves or PHYS 2422 Honors Physics II* PHYS 2126 Electromagnetism Laboratory MATH 2415 or MATH 2451 Multivariable Calculus MATH 2418 Linear Algebra CHEM 2323 Organic Chemistry I CHEM 2123 Organic Chemistry Lab I	PHYS 3411 Theoretical Physics MATH 2420 Ordinary Differential Equations PHYS 4311 Thermodynamics/Statistical Mechanics PHYS 3327 Electronics with Laboratory CHEM 2325 Organic Chemistry II CHEM 2125 Organic Chemistry Lab II		Fall - 16-17 Spring - 18 Total Hrs - 65-67
Junior	PHYS 4301 Quantum Mechanics I PHYS 3330 Numerical Methods and Computational Techniques PHYS 3416 Electricity and Magnetism BIOL 2311 Intro to Modern Biology I BIOL 2111 Intro to Modern Biology I Workshop HIST 1301 Themes in American History	PHYS 4302 Quantum Mechanics II PHYS 3312 Classical Mechanics BIOL 3361 Biochemistry I BIOL 3161 Biochemistry Workshop I PHYS 4373 Physical Measurements Laboratory GOVT 2305 Government 1 AP 1301 Exploration of the Arts	REU	Fall - 17 Spring - 19 Total Hrs - 101/103
Senior	PHYS 4352 Concepts of Modern Physics BIOL 3380 Biochemistry Lab I†† BIOL 3301 Classical and Molecular Genetics BIOL 3101 Class. and Mole. Genetics Workshop GOVT 2306 Government 2 HIST 1302 Issues in American History Social and Behavioral Sci. Elective 3 credit hours	PHYS 4328 Optics PHYS 4390 or PHYS 4399 Advanced Writing (or thesis) Physics (Upper Division) Electives - 6 credit hours Biology (Upper Division) Elective - 3 credit hours GOVT 2301 Government 1		Fall - 19 Spring - 18 Total Hrs - 138/140

Notes:

*PHYS 2421 Honors Physics I is a recommended substitution for PHYS 2325. (Requires a minimum grade of B+ in either MATH 2413 or MATH 2417)

*PHYS 2422 Honors Physics II is a recommended substitution for PHYS 2326.

**Either math sequence MATH 2413, 2414, 2415 or MATH 2417, MATH 2419 and MATH 2451 required.

MATH 2413 or MATH 2417 is a prerequisite for PHYS 2325 and MATH 2414 or MATH 2419 is a corequisite for PHYS 2325.

MATH 2414 or MATH 2419 is a prerequisite for PHYS 2326.

51 Hours of upper division courses (course numbers beginning with 3 or greater) are required for all degrees.

A Biology minor requires at least 12 upper-division credits: BIOL 3361/3161 and BIOL 3301/3101 plus two upper-division electives for Biology majors. BIOL 3380 is recommended for the first upper-division elective. A minor requires at least 18 total credits including lower-division courses that are satisfied by CHEM 2323/2123, CHEM 2325/2125, BIOL 2311/2111. Suggested upper-division Biology electives are BIOL 5430 Macromolecular Physical Chemistry, BIOL 3336 Protein and Nucleic Acid Structure, BIOL 3362 Biochemistry II, and BIOL 6V39/5V49 Biophotonics. However any upper-division Biology course for Biology majors may be used.

††The BIOL 2281 pre-req. for BIOL 3380 will be waived for Physics B.S. students who have taken already taken BIOL 3361 Biochemistry I, or who are taking BIOL 3361 concurrently with BIOL 3380.

Research Experiences for Undergraduates (REUs) during the summer are highly recommended for Physics majors planning to continue their education in graduate school. Formal REU programs exist at many universities, national laboratories, and even overseas, and typically offer a stipend like that of a graduate teaching assistantship. Announcements for REU programs usually appear online in December and application deadlines usually range from late January to early March. Students may be eligible if they have completed their freshman year.