

93-04

March 30, 1993

**Bachelor of Science in Biology**  
**Option in General Biology**  
**Option in Botany**  
**Option in Ecology and Environmental Biology**  
**Option in Physiology**  
**Option in Zoology**

This degree includes a general option in Biology and five additional options for those desiring a more specialized program.

**Biology (code 3-7621)**

This option is designed for students interested in careers in one or another of many aspects of biological science and especially for those who contemplate graduate work. It broadly covers many areas of study within the biological sciences without specializing in any one field and it requires a total of 85 units in the major, of which 46 are in lower division and 39 are in upper division, and a minimum of 132 units for graduation.

Lower Division: BIOL 210A,B, 240, 260; CHEM 111A,B; MATH 119A or 122, 119B or 123; MICR 210; NSCI 200; and PHYS 100A,B.

Upper Division: at least 39 units to include CHEM 321A, 322; BIOL 350, 370; either A/P 340 and 340L or BIOL 447 and 447L; either BIOL 313 or 324; one of BIOL 427, 438, or 439; and 12-13 additional units selected from upper division courses in the Department of Biology. At least two of the courses selected to fulfill these additional units must have numbers between 410-499. Either CHEM 441A,B, or 448 will count toward these additional units but A/P 305, 307, 308I, 400, 401, BIOL 301, 302, 305, and NSCI 492 will not count toward these additional units. Up to 6 of these additional units may be substituted from courses in other departments in the College of Natural Sciences upon approval by the undergraduate advisor. Students considering graduate work should consider taking 1-3 units of BIOL 496.

**Option in Botany (code 3-7622)**

This option is designed primarily for those interested in careers in botany and is particularly appropriate for those contemplating graduate work in this field. This degree requires a total of 83 units in the major, of which 42 are in lower division and 41 in upper division, and a minimum of 132 units for graduation.

Lower Division: BIOL 210A,B, 240, 260; CHEM 111A,B; MATH 119A or 122, 119B or 123; NSCI 200; and PHYS 100A,B.

Upper Division: 41 units to include CHEM 321A, 322, 441A,B; BIOL 350 or 450, 370, 427, 438, 439, 447, 447L. Remaining five units selected in consultation with appropriate advisor. ENGL 317 is acceptable toward these five units but A/P 305, 307, 308I, 400, 401; BIOL 301, 302, 305; NSCI 492 are not acceptable toward these five units. Students contemplating graduate work should consider taking 1-3 units of BIOL 496.

**Option in Ecology and Environmental Biology (code 3-7623)**

This option is designed primarily for those interested in careers as ecologists or environmental biologists, either in private industry or government service, as well as those contemplating

graduate work in these fields. This option requires a total of 89-95 units in the major, of which 46 are in lower division and 43-49 are in upper division, and a minimum of 132 units for graduation. Students in this option might also want to pursue the Certificate of Environmental Studies described elsewhere in this Bulletin.

Lower Division: BIOL 210A,B, 240, 260; CHEM 111A,B; GEOL 102, 104 or 105; MATH 119A or 122, 119B or 123; NSCI 200; and PHYS 100A,B.

Upper Division: CHEM 321A, CHEM 322; BIOL 350, 370, 412, 427; either A/P 340 and 340L or BIOL 447 and 447L; one of the following three: BIOL 313, 316, 324; five additional courses to include one from these 11 in organic diversity: BIOL 314, 315, 413, 417, 418, 419, 421, 423, 424, 425, or 439; one from these seven in advanced ecology: BIOL 414, 450, 453, 454, 455, 457, or 458; one from these three in quantitative biology: BIOL 456, 463, 465; one from these five in environmental science: BIOL 460, 464, GEOG 440, or 442; and another one from any of the preceding four lists or either BIOL 351 or 353. With permission of the appropriate advisor, three units of BIOL 496 is acceptable as this fifth additional course.

### **Option in Physiology (code 3-7624)**

This option is designed primarily for those interested in careers in physiology and is particularly appropriate for those contemplating graduate work in this field or entering one of the health-related professions such as medicine. This option requires a total of 85-87 units in the major, of which 43 are in lower division and 42-44 are in upper division.

Lower Division: BIOL 210A,B, 260; CHEM 111A,B; MATH 119A or 122, 119B or 123; MICR 210; NSCI 200; and PHYS 100A,B.

Upper Division: CHEM 321A, 322 (or 321B), 441A, B; 28 additional units in the biological sciences including A/P 440, BIOL 370, one or more courses selected from among A/P 335, BIOL 332, 333, or 433, four units selected from A/P 340 and 340L, 342 and 342L; and nine or more units selected from A/P 340, 342, 441, 442, 443, 445, 446, 447, 460, 480, and BIOL 473. The remaining 3 of these 28 units should be selected from above as well as other courses in consultation with a faculty advisor. The following courses are not acceptable toward these 28 units: A/P 305, 307, 308I, 400, 401; BIOL 301, 302, 305, 308I; NSCI 492.

### **Option in Zoology (code 3-7625)**

This option is designed primarily for those interested in careers in zoology and is particularly appropriate for those contemplating graduate work in this field. This option requires a total of 84-88 units in the major, of which 46 are in lower division and 38-42 are in upper division, and a minimum of 132 units for graduation.

Lower Division: BIOL 210A,B, 240, 260; CHEM 111A,B; MATH 119A or 122, 119B or 123; either MICR 210 or GEOL 102, 104 or 105; NSCI 200; and PHYS 100A,B.

Upper Division: CHEM 321A, 322; A/P 340 and 340L; BIOL 350, 370, 412, 332 or 333, 313 or 316, one course selected from 324 or 419 or 421 or 423 or 424, and at least two additional courses in biological science totaling at least 6 units chosen in consultation with a major advisor. Either CHEM 441A,B or 448 will count towards these 6 units but A/P 305, 307, 308I, 400, 401; BIOL 301, 302, 305; NSCI 492 will not count towards these 6 units. Students contemplating graduate work should consider taking 1-3 units of BIOL 496.