

# Broad Field Science

This major is open only to students enrolled in the College of Education. Students who complete this major with licensure in grades 6 through 12 may be employed to teach:

1. All science in grades 6 through 9 and general science including physical science in grades 10 through 12.
2. Biology, chemistry or physics (area of minor).

Interested students should see the chairpersons of biology, chemistry or physics, their advisers and the College of Education's director of undergraduate advising.

## Broad Field Science Major

The Broad Field Science major consists of nine required common courses for broad field science (32 credit hours) and a minor for teaching certification in either biology, chemistry or physics which consists of an additional five to six courses (17-20 credit hours) for a total of 49-52 credit hours.

Required Courses for all Broad Field Science Majors:

|                    |  |    |
|--------------------|--|----|
| Biology Courses:   |  |    |
| BIOL 1001          | General Biology 1                            | 3  |
| BIOL 1002          | General Biology 2                            | 3  |
| BIOL 2001          | Principles of Biological Investigation       | 3  |
| Chemistry Courses: |  |    |
| CHEM 1001          | General Chemistry 1                          | 4  |
| CHEM 1002          | General Chemistry 2                          | 4  |
| CHEM 2111          | Organic Chemistry 1                          | 4  |
| or CHEM 2113       | Organic Chemistry for Majors 1               |    |
| Physics Courses:   |  |    |
| PHYS 1001          | General Physics 1                            | 4  |
| or PHYS 1003       | General Physics with Introductory Calculus 1 |    |
| or PHYS 1013       | Classical and Modern Physics with Calculus 1 |    |
| PHYS 1002          | General Physics 2                            | 4  |
| or PHYS 1004       | General Physics with Introductory Calculus 2 |    |
| or PHYS 1014       | Classical and Modern Physics with Calculus 2 |    |
| PHYS 1009          | Earth and Environmental Physics              | 3  |
| Total Credit Hours |  | 32 |

In addition, Broad Field Science majors must complete an area of concentration in biology, chemistry or physics.

## Biology minor for teaching certification requirements

|  |                                      |     |
|--|--------------------------------------|-----|
| Biology Courses:                       |                                      |     |
| BIOL 3201                              | Genetics                             | 3   |
| BIOL 3301                              | Cell Biology                         | 3   |
| and two additional courses in Biology: |                                      | 6-7 |
| BIOL 1410                              | Biology of Human Disease             |     |
| BIOL 3400                              | Ecology                              |     |
| BIOL 3404                              | Evolutionary Biology                 |     |
| BIOL 4406                              | Plant Biology                        |     |
| BIOL 4501                              | Cellular Neurobiology                |     |
| BIOL 4701                              | Human Physiology                     |     |
| BIOL 4801                              | Microbiology                         |     |
| MATH / COSC Courses:                   |                                      |     |
| MATH 1410                              | Calculus for the Biological Sciences | 3-4 |
| or MATH 1450                           | Calculus 1                           |     |
| MATH 4740                              | Biostatistical Methods and Models    | 3   |

|                    |                              |       |
|--------------------|------------------------------|-------|
| or MATH 1700       | Modern Elementary Statistics |       |
| Total Credit Hours |                              | 18-20 |

### Chemistry minor for teaching certification requirements

|                        |   |    |
|------------------------|---|----|
| Chemistry Courses:     |   |    |
| CHEM 2112              | Organic Chemistry 2                             | 4  |
| or CHEM 2114           | Organic Chemistry for Majors 2                  |    |
| CHEM 3201              | Quantitative Analysis                           | 4  |
| Biology Course:        |   |    |
| BIOL 4101              | Biochemistry and the Molecular Basis of Biology | 3  |
| MATH / COSC Course(s): |   |    |
| MATH 1410              | Calculus for the Biological Sciences            | 3  |
| or MATH 1450           | Calculus 1                                      |    |
| COSC 1000              | Introduction to Computer Science                | 3  |
| Total Credit Hours     |   | 17 |

### Physics minor for teaching certification requirements

|                    |  |    |
|--------------------|--|----|
| Physics Courses:   |  |    |
| PHYS 2004          | Modern Physics: Atoms, Particles, and Quanta | 3  |
| PHYS 2005          | Modern Physics: The States of Matter         | 3  |
| MATH Courses:      |  |    |
| MATH 1450          | Calculus 1                                   | 4  |
| MATH 1451          | Calculus 2                                   | 4  |
| MATH 2450          | Calculus 3                                   | 4  |
| Total Credit Hours |  | 18 |

### Science Major For Elementary/Middle Education

The Science major consists of nine required courses (30 credit hours) and two courses (6 credits) in electives chosen from the biology, chemistry or physics courses listed below for a total of 36 credit hours.

#### Required Courses:

|  |  |   |
|--|--|---|
| ARSC Courses:                            |  |   |
| ARSC 1020                                | Major Concepts in Modern Science 1     | 4 |
| ARSC 1021                                | Major Concepts in Modern Science 2     | 4 |
| Biology Courses:                         |  |   |
| BIOL 1001                                | General Biology 1                      | 3 |
| BIOL 1002                                | General Biology 2                      | 3 |
| BIOL 2001                                | Principles of Biological Investigation | 3 |
| Chemistry Course:                        |  |   |
| CHEM 1001                                | General Chemistry 1                    | 4 |
| Physics Courses:                         |  |   |
| PHYS 1007                                | Survey of Meteorology                  | 3 |
| PHYS 1008                                | Astronomy and Space Physics            | 3 |
| PHYS 1009                                | Earth and Environmental Physics        | 3 |
| Electives: 6 credits from the following: |  | 6 |
| Biology Courses:                         |  |   |
| BIOL 1406                                | Plants, Pathogens and People           |   |
| BIOL 3301                                | Cell Biology                           |   |
| BIOL 3400                                | Ecology                                |   |
| BIOL 4601                                | Animal Development                     |   |
| Chemistry Course:                        |  |   |
| CHEM 1002                                | General Chemistry 2                    |   |

Physics Courses:

|           |                   |
|-----------|-------------------|
| PHYS 1001 | General Physics 1 |
| PHYS 1002 | General Physics 2 |

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Total Credit Hours 36