

DEPARTMENT OF BIOLOGICAL SCIENCES AND CHEMISTRY AND PHYSICS

Students who major in Science in the College of Education and Human Development will designate as their *Primary Teaching Area* one of the three science fields of Biology, Chemistry or Physics. In addition to the *Primary Teaching Area*, students will have a *Secondary Teaching Area* in a second science field of Biology, Chemistry, Physics or Mathematics*. Eight semester hours in a third science field, or a second science field if the *Secondary Teaching Area* is in Mathematics, are also required. Completion of the curriculum will meet teaching certification requirements for the Primary and Secondary Teaching Areas.

* A grade of "C" or better is required in all science and mathematics courses.

PRIMARY TEACHING AREA

Biology: A minimum of thirty-four (34) semester hours is required for a concentration in Biology. Students with a primary teaching area of Biology will schedule GBIO 151, 153, BIOL 152, 154, MIC 205/MICL 207 or MIC 223/MICL 224, GBIO 200, 312, 405, 395, 441, ZOO 392, and SCIE 300. If Physics or Math is chosen as a secondary teaching focus, LS 102 is required. Students with Chemistry as a secondary teaching area are encouraged to schedule Chemistry 150 in place of LS 102.

Chemistry: Thirty-one (31) semester hours are required for a primary teaching area in Chemistry. Students with a primary teaching area of Chemistry will schedule Chemistry 150, 121-123, 122-124, 251, 254, 261-263, 281-283, 290, 411 and SCIE 300.

Physics: Thirty-one (31) semester hours are required for a primary teaching area in Physics. Students with a primary teaching area in Physics will schedule Physics 130, 221-223, 222-224, 301-303, 312-314, 321, 332, 351 and 411 and SCIE 300. If Biology or Math is chosen as a secondary teaching area, LS 102 is required. Students with Chemistry as a secondary teaching area are encouraged to schedule Chemistry 150.

SECONDARY TEACHING AREA

Biology: Twenty-two (22) semester hours are required for a secondary teaching area of Biology. Students will schedule GBIO 151 and 153, BIOL 152 and 154, MIC 205/MICL 207 or MIC 223/MICL 224, GBIO 200, 312, and 405.

Chemistry: Twenty (20) semester hours are required for a secondary teaching area of Chemistry. Students will schedule Chemistry 121-123, 122-124, 251, 254, 261-263 and 281.

Physics: Twenty (20) semester hours are required for a secondary teaching focus of Physics. Students will schedule Physics 130, 221-223, 222-224, 301-303, 312-314 and 351.

Mathematics: Twenty-two (22) semester hours are required for a secondary teaching area of Mathematics. Students will schedule Mathematics 200, 201, 223, 309, 380, and 460.

GENERAL SCIENCE CERTIFICATION

Students seeking General Science Certification must complete SCIE 300 and the following 32 credit hour sequence: GBIO 151-153 and BIOL 152-154; CHEM 121-122, CLAB 123-124, PHYS 191-192 and PLAB 193-194 or PHYS 221-222 and PLAB 223-224; and EASC 101-102 and ESLB 103-104.

ADDITIONAL AREAS OF CERTIFICATION

Additional areas of certification will require 19-23 semester hours as selected by the department in which that content is taught. For further information, please check with either the Department of English, the Department of Foreign Languages and Literatures, or the Department of History and Political Sciences (Social Studies).

HONORS DIPLOMA IN THE DISCIPLINE

The department also offers an upper-division honors curriculum allowing its students to earn an honors diploma in the major at graduation. For information about requirements and honors courses in this department, please contact the department head.

CURRICULUM IN SECONDARY SCIENCE EDUCATION* LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

| FIRST YEAR | | | |
|--|-------|--|-------|
| FIRST SEMESTER | S.H. | SECOND SEMESTER | S.H. |
| English 101 | 3 | †English 102 | 3 |
| Mathematics 161 or 200 ¹ | 3-5 | Mathematics 162 /165 or 201 ¹ | 3-5 |
| †Natural Science ² | 4 | †Natural Science ² | 4 |
| Social Science Elective ³ | 3 | Fine Arts Elective ⁵ | 3 |
| †LS 102 or CHEM 150 ⁴ | 1-2 | †Primary/Secondary Teaching Area | 4 |
| Southeastern 101 | 0-3 | | |
| Primary/Secondary Teaching Area | 0-1 | | |
| | 14-21 | | 17-19 |
| SECOND YEAR | | | |
| English 230, 231, or 232 | 3 | †Primary/Secondary Teaching Area | 3-4 |

| | | | |
|--|-------|--|-------|
| Communication 210 | 3 | †Primary/Secondary Teaching Area | 4 |
| †Primary/Secondary Teaching Area | 4 | †Primary/Secondary Teaching Area | 4 |
| †Primary/Secondary Teaching Area | 4-5 | †SPED 210 | 2 |
| ††EDUC 203..... | 2 | †EPSY 311 | 3 |
| ††EDUC 212(take with Educ 203)..... | 1 | | |
| | 17-18 | | 16-17 |

THIRD YEAR

| | | | |
|--|-------|--|-------|
| History 417..... | 3 | Social Science Elective ³ | 3 |
| †Primary/Secondary Teaching Area | 3-4 | SCIE 300 | 4 |
| †Primary/Secondary Teaching Area | 3-4 | †Primary/Secondary Teaching Area | 3-4 |
| †Education 407 | 3 | †Primary/Secondary Teaching Area | 3-4 |
| †Primary/Secondary Teaching Area | 3 | †EDUC 472 | 3 |
| | 15-17 | | 16-18 |

FOURTH YEAR

| | | | |
|--|-------|----------------|---|
| †Primary/Secondary Teaching Area | 3-4 | EDUC 486 | 9 |
| †Primary/Secondary Teaching Area | 4 | | |
| †EPSY 315 | 3 | | |
| †EDUC 475..... | 1 | | |
| †EDUC 490..... | 6 | | |
| | 17-18 | | 9 |

Total semester hours required 124-133

Southeastern 101 is not required for transfer or readmitted Southeastern students with 30 hours or more.

* Primary/Secondary Teaching Area includes courses from two of the following disciplines; Chemistry, Physics, Biological Sciences, Mathematics (Secondary Teaching Area only).

†A grade of "C" or above must be earned in these courses.

††A grade of "B" or above must be earned in this course.

¹ For Primary/Secondary Teaching Areas not including Physics, take Math 161 and Math 162/165; for

Primary/Secondary Teaching Areas including Physics, take Math 200 and Math 201. Students with an ACT Math score of 20 or lower will take Math 155 (5 credit hours) in place of Math 161, which will increase 2 credit hours the total number of hours required for the degree.

² For Primary/Secondary Teaching Area not including Physics, take PHYS 191-192/PLAB 193-194; for Primary/Secondary Teaching Area not including Biological Sciences, take GBIO 151-153/BIOL 152-154.

³ Must be selected from ECON, GEOG, ANTH, POLI, PSYC or SOC.

⁴ For Primary/Secondary Teaching Areas including Chemistry, take CHEM 150.

⁵ Must be selected from ART 105, ART 106, MUS 151, THEA 131, DNC 302 or other approved courses.

PRIMARY TEACHING AREA: BIOLOGICAL SCIENCES

SECONDARY TEACHING AREA: CHEMISTRY

Biological Sciences (Primary) @ 34 hours

Chemistry (Secondary) @ 20 hours

| | |
|--|---------------|
| General Biology 151 | 3 hrs |
| General Biology Lab 152..... | 1 hr |
| General Biology 153..... | 3 hrs |
| General Biology Lab 154..... | 1 hr |
| MIC 205/MICL 207 or MIC 223/MICL 224 | 4 hrs |
| General Biology 200..... | 3 hrs |
| General Biology 312..... | 3 hrs |
| General Biology 405..... | 4 hrs |
| General Biology 395..... | 3 hrs |
| Zoology 392..... | 4 hrs |
| General Biology 441..... | 1 hr |
| Chemistry 121..... | 3 hrs |
| Chemistry lab 123..... | 1 hr |
| Chemistry 122..... | 3 hrs |
| Chemistry lab 124..... | 1 hr |
| Chemistry 251..... | 3 hrs |
| Chemistry lab 254..... | 2 hrs |
| Chemistry 261..... | 3 hrs |
| Chemistry lab 263..... | 1 hr |
| Chemistry 281..... | 3 hrs |
| SCIE 300..... | 4 hrs |
| TOTAL | 127-128 Hours |

PRIMARY TEACHING AREA: BIOLOGICAL SCIENCES

SECONDARY TEACHING AREA: PHYSICS

Biological Sciences (Primary) @ 34 hours

Physics (Secondary) @ 20 hours

| | |
|---------------------------|-------|
| General Biology 151 | 3 hrs |
|---------------------------|-------|

| | |
|--|----------------------|
| General Biology Lab 152..... | 1 hr |
| General Biology 153..... | 3 hrs |
| General Biology Lab 154..... | 1 hr |
| MIC 205/MICL 207 or MIC 223/MICL 224 | 4 hrs |
| General Biology 200..... | hrs |
| General Biology 405..... | 4 hrs |
| General Biology 395..... | 3 hrs |
| Zoology 392..... | 4 hrs |
| General Biology 441..... | 1 hr |
| Physics 130..... | 1 hr |
| Physics 221..... | 3 hrs |
| Physics lab 223..... | 1 hr |
| Physics 222..... | 3 hrs |
| Physics lab 224..... | 1 hr |
| Physics 351..... | 3 hrs |
| Physics 301/303..... | 4 hrs |
| Physics 312/314..... | 4 hrs |
| SCIE 300..... | 4 hrs |
| TOTAL | 130-131 Hours |

PRIMARY TEACHING AREA: BIOLOGICAL SCIENCES

SECONDARY TEACHING AREA: MATH

Biological Sciences (Primary) @ 34 hours

Math (Secondary) @ 22 hours

| | |
|--|----------------------|
| General Biology 151..... | 3 hrs |
| General Biology Lab 152..... | 1 hr |
| General Biology 153..... | 3 hrs |
| General Biology Lab 154..... | 1 hr |
| MIC 205/MICL 207 or MIC 223/MICL 224 | 4 hrs |
| General Biology 200..... | 3 hrs |
| General Biology 312..... | 3 hrs |
| General Biology 405..... | 4 hrs |
| General Biology 395..... | 3 hrs |
| Zoology 392..... | 4 hrs |
| General Biology 441..... | 1 hr |
| Math 200..... | 5 hrs |
| Math 201..... | 5 hrs |
| Math 223..... | 3 hrs |
| Math 309..... | 3 hrs |
| Math 380..... | 3 hrs |
| Math 460..... | 3 hrs |
| SCIE 300..... | 4 hrs |
| TOTAL | 130-131 Hours |

PRIMARY TEACHING AREA: CHEMISTRY

SECONDARY TEACHING AREA: BIOLOGICAL SCIENCES

Chemistry (Primary) @ 31 hours

Biological Sciences (Secondary) @ 22 hours

| | |
|--|-------|
| Chemistry 150..... | 2 hrs |
| Chemistry 121..... | 3 hrs |
| Chemistry Lab 123..... | 1 hr |
| Chemistry 122..... | 3 hrs |
| Chemistry Lab 124..... | 1 hr |
| Chemistry 251..... | 3 hrs |
| Chemistry Lab 254..... | 2 hrs |
| Chemistry 261..... | 3 hrs |
| Chemistry Lab 263..... | 1 hr |
| Chemistry 281..... | 3 hrs |
| Chemistry Lab 283..... | 1 hr |
| Chemistry 290..... | 3 hrs |
| Chemistry Lab 411..... | 1 hr |
| General Biology 151..... | 3 hrs |
| General Biology Lab 152..... | 1 hr |
| General Biology 153..... | 3 hrs |
| General Biology Lab 154..... | 1 hr |
| MIC 205/MICL 207 or MIC 223/MICL 224 | 4 hrs |
| General Biology 200..... | 3 hrs |
| General Biology 312..... | 3 hrs |
| General Biology 405..... | 4 hrs |
| SCIE 300..... | 4 hrs |

TOTAL

124-125 Hours

PRIMARY TEACHING AREA: CHEMISTRY

SECONDARY TEACHING AREA: PHYSICS

Chemistry (Primary) @ 31 hours

Physics (Secondary) @ 20 hours

| | |
|------------------------|-------|
| Chemistry 150..... | 2 hrs |
| Chemistry 121..... | 3 hrs |
| Chemistry Lab 123..... | 1 hr |
| Chemistry 122..... | 3 hrs |
| Chemistry Lab 124..... | 1 hr |
| Chemistry 251..... | 3 hrs |
| Chemistry Lab 254..... | 2 hrs |
| Chemistry 261..... | 3 hrs |
| Chemistry Lab 263..... | 1 hr |
| Chemistry 281..... | 3 hrs |
| Chemistry lab 283..... | 1 hr |
| Chemistry 290..... | 3 hrs |
| Chemistry Lab 411..... | 1 hr |
| Physics 130..... | 1 hr |
| Physics 221..... | 3 hrs |
| Physics Lab 223..... | 1 hr |
| Physics 222..... | 3 hrs |
| Physics Lab 224..... | 1 hr |
| Physics 351..... | 3 hrs |
| Physics 301/303..... | 4 hrs |
| Physics 312/314..... | 4 hrs |
| SCIE 300..... | 4 hrs |

TOTAL

126-127 Hours

PRIMARY TEACHING AREA: CHEMISTRY

SECONDARY TEACHING AREA: MATH

Chemistry (Primary) @ 31 hours

Math (Secondary) @ 22 hours

| | |
|------------------------|-------|
| Chemistry 150..... | 2 hrs |
| Chemistry 121..... | 3 hrs |
| Chemistry Lab 123..... | 1 hr |
| Chemistry 122..... | 3 hrs |
| Chemistry Lab 124..... | 1 hr |
| Chemistry 251..... | 3 hrs |
| Chemistry Lab 254..... | 2 hrs |
| Chemistry 261..... | 3 hrs |
| Chemistry Lab 263..... | 1 hr |
| Chemistry 281..... | 3 hrs |
| Chemistry Lab 283..... | 1 hr |
| Chemistry 290..... | 3 hrs |
| Chemistry Lab 411..... | 1 hr |
| Math 200..... | 5 hrs |
| Math 201..... | 5 hrs |
| Math 223..... | 3 hrs |
| Math 309..... | 3 hrs |
| Math 380..... | 3 hrs |
| Math 460..... | 3 hrs |
| SCIE 300..... | 4 hrs |

TOTAL

126-127 Hours

PRIMARY TEACHING AREA: PHYSICS

SECONDARY TEACHING AREA: BIOLOGICAL SCIENCES

Physics (Primary) @ 31 hours

Biological Sciences (Secondary) @ 22 hours

| | |
|----------------------|-------|
| Physics 130..... | 1 hr |
| Physics 22..... | 3 hrs |
| Physics Lab 223..... | 1 hr |
| Physics 222..... | 3 hrs |
| Physics Lab 224..... | 1 hr |
| Physics 301..... | 3 hrs |
| Physics lab 303..... | 1 hr |
| Physics 321..... | 3 hrs |
| Physics 351..... | 3 hrs |

| | |
|--|----------------------|
| Physics 312/314..... | 4 hrs |
| Physics 332 | 3 hrs |
| Physics 411 | 1 hr |
| General Biology 151..... | 3 hrs |
| General Biology Lab 152..... | 1 hr |
| General Biology 153..... | 3 hrs |
| General Biology Lab 154..... | 1 hr |
| MIC 205/MICL 207 or MIC 223/MICL 224 | 4 hrs |
| General Biology 200..... | 3 hrs |
| General Biology 312..... | 3 hrs |
| General Biology 405..... | 4 hrs |
| SCIE 300..... | 4 hrs |
| TOTAL | 129-130 Hours |

PRIMARY TEACHING AREA: PHYSICS
SECONDARY TEACHING AREA: CHEMISTRY

Physics (Primary) @ 31 hours

Chemistry (Secondary) @ 20 hours

| | |
|-------------------------|---------------------|
| Physics 130 | 1 hr |
| Physics 221 | 3 hrs |
| Physics lab 223 | 1 hr |
| Physics 222 | 3 hrs |
| Physics lab 224 | 1 hr |
| Physics 301 | 3 hrs |
| Physics lab 303 | 1 hr |
| Physics 321 | 3 hrs |
| Physics 351 | 3 hrs |
| Physics 312/314..... | 4 hrs |
| Physics 332 | 3 hrs |
| Physics 411 | 1 hr |
| Chemistry 121..... | 3 hrs |
| Chemistry Lab 123 | 1 hr |
| Chemistry 122..... | 3 hrs |
| Chemistry lab 124..... | 1 hr |
| Chemistry 251..... | 3 hrs |
| Chemistry lab 254..... | 2 hrs |
| Chemistry 261..... | 3 hrs |
| Chemistry lab 263..... | 1 hr |
| Chemistry 281..... | 3 hrs |
| SCIE 300..... | 4 hrs |
| TOTAL | 128-129 Hour |

PRIMARY TEACHING AREA: PHYSICS
SECONDARY TEACHING AREA: MATH

Physics (Primary) @ 31 hours

Math (Secondary) @ 22 hours

| | |
|----------------------|----------------------|
| Physics 130 | 1 hr |
| Physics 221 | 3 hrs |
| Physics Lab 223..... | 1 hr |
| Physics 222 | 3 hrs |
| Physics Lab 224..... | 1 hr |
| Physics 301 | 3 hrs |
| Physics lab 303..... | 1 hr |
| Physics 321 | 3 hrs |
| Physics 351 | 3 hrs |
| Physics 312/314..... | 4 hrs |
| Physics 332 | 3 hrs |
| Physics 411 | 1 hr |
| Math 200 | 5 hrs |
| Math 201 | 5 hrs |
| Math 223 | 3 hrs |
| Math 309 | 3 hrs |
| Math 380..... | 3 hrs |
| Math 460 | 3 hrs |
| SCIE 300..... | 4 hrs |
| TOTAL | 127-128 Hours |