

College of Education and Human Development

Science

DEPARTMENT OF BIOLOGICAL SCIENCES
&
DEPARTMENT OF CHEMISTRY AND PHYSICS

- Science

Concentration: Biology (Minor: Chemistry)

Concentration: Biology (Minor: Mathematics)

Concentration: Biology (Minor: Physics)

Concentration: Chemistry (Minor: Mathematics)

Concentration: Chemistry (Minor: Physics)

Concentration: Physics (Minor: Mathematics)

Science

Students who major in Science in the College of Education and Human Development will complete a concentration in one of the three science fields (Biology, Chemistry, or Physics). In addition to the concentration, students will minor in a second science field (Biology, Chemistry, or Physics) or Mathematics*. Eight semester hours in a third science field (or in a second science field if minoring in Mathematics) and eight semester hours of Earth Science are also required. Completion of the curriculum will meet teaching certification requirements for the concentration and the minor, as well as for general science. Certification in an additional science field requires a maximum of sixteen semester hours of specified course work in that field.

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

Concentrations

Biology: A minimum of thirty-two (32) semester hours are required for a concentration in Biology. Students with a concentration in Biology will schedule GBIO 151, 153, BIOL 152, 154, MIC 205/207, GBIO 200, 312, 402 (ZOO 483), 395, 404, 441, and ZOO 241 (or ZOO 392).

Chemistry: Twenty-nine (29) semester hours are required for a concentration in Chemistry if Biology or Mathematics is chosen as the minor, and twenty-six (26) semester hours are required for a concentration in Chemistry if Physics is chosen as the minor. Students with a concentration in Chemistry will schedule Chemistry 121-123, 122-124, 251, 253, 254, 261-263, 281-283, and 335. In addition, students with a minor in Biology or Mathematics will schedule Chemistry 290. Students with a minor in Physics will schedule Physics 321.

Physics: Twenty-nine (29) semester hours are required for a concentration in Physics. Students with a concentration in Physics will schedule Physics 130, 221-223, 222-224, 301-303, 312-314, 321, 332, 335, and 351.

Minors

Biology: Eighteen (18) hours are required for a minor in Biology. Students minoring in Biology will schedule GBIO 151, BIOL 152, GBIO 153, BIOL 154, MIC 205/207 or MIC 223/224, GBIO 441 and five additional upper level Biology hours.

Chemistry: Seventeen (17) or eighteen (18) semester hours (depending on which courses are taken) are required for a minor in Chemistry for students who major in Science in the College of Education. Students minoring in Chemistry will schedule Chemistry 121-123, 122-124, 251, 261-263, as well as one of the following: 253, 254, or 335.

Physics: Sixteen (16) semester hours are required for a minor in Physics for students who major in Science in the College of Education. Students minoring in Physics will schedule Physics 221-223, 222-224, 301-303 and four (4) additional hours of Physics.

Mathematics: Twenty-two (22) semester hours are required for a minor in Mathematics for students who major in Science in the College of Education. Students minoring in Mathematics will schedule Mathematics 162, 165, 200, 201, 309 and 311.

General Science Certification

Completion of the curriculum in any concentration will meet the course requirements to certify a student in General Science.

Third Science Field Certification

Sixteen (16) semester hours are required for certification in a third science field.

Biology: Students in Biology will schedule GBIO 151, BIOL 152, GBIO 153, BIOL 154, MIC 205/207 and four (4) additional hours.

Chemistry: Students in Chemistry will schedule Chemistry 121-123, 122-124, 251 and five (5)

additional hours selected from Chemistry 253, 254, 261-263*, 265-267, 266-268, 281-283, 290, 306, and 335.

Physics: Students in Physics will schedule Physics 130, 221-223, 222-224 and seven (7) additional hours, five (5) of which must be selected from 300-level or higher Physics courses. Mathematics 200 also must be completed in order to be certified in Physics. A student seeking certification in Mathematics must schedule Math 309.

*Unless the student takes both Chemistry 265-267 and 266-268, Chemistry 261-263 is recommended.

Science Certification: Non-Science Majors

The requirements for a minor field in General Science may be met by completing thirty-eight (38) semester hours of work distributed as follows:

Mathematics 161 (College Algebra)	3 hours
Mathematics 162 (Trigonometry)	3 hours
GBIO 151, 153, BIOL 152, 154	8 hours
Chemistry 121-123, 122-124	8 hours
Earth Science 101-103, 102-104	8 hours
Physics 191-193, 192-194 or 221-223, 222-224	8 hours

An additional eight (8) hours in Biology, Chemistry or Physics will prepare the student to teach in the discipline in which the additional eight hours are taken. Special requirements on the additional eight hours are:

Biology: The additional eight hours must include microbiology.

Chemistry: The additional eight hours must include organic chemistry and either quantitative analysis or physical chemistry.

Physics: Mathematics 200 must be completed in addition to the eight hours of physics.

Total

38 hours

Curriculum in Science

Leading to the Degree of Bachelor of Arts

FIRST YEAR

First Semester	S.H.	Second Semester	S.H.
†Science	4	†Science	4
English 101	3	English 102	3
Health Studies 131	2	Library Science 102	1
†Mathematics 161 or 165	3	†Mathematics 162	3
Kinesiology Lab	1	Kinesiology Lab	1
Social Science	3	*Computer Literacy	3
Orientation 101	0-1		
	16-17		15

SECOND YEAR

First Semester	S.H.	Second Semester	S.H.
†Science	4	†Science	4
†Science or Mathematics	4-8	†Science or Mathematics	3-5
Art 105 or Art 106, Music 151, Theatre 131, or Dance 302	3	†Education 202	3
English 230, 231, or 232	3	Social Science 1	3
		English 230, 231, or 232	3
	14-18		16-18

THIRD YEAR

First Semester	S.H.	Second Semester	S.H.
†Science	7-8	†Science	7-8
†Science or Mathematics	3-5	†Science or Mathematics	3-4
†Educational Psychology 311	3	†Education 407	3
Communication 211	3	History 201 or 202	3
	16-19		16-18

FOURTH YEAR

First Semester	S.H.	Second Semester	S.H.
†Science	9-12	†Science	5-8
†Science or Mathematics	3	†Educational Psychology 315	3
†Education 472	3	†Education 485	3
		†Education 488	1
		Social Science 1	3
	15-18		15-18

Professional Semester

†Education 486	9
	9

Total Semester Hours Required= 132-150

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

*Computer Science 110, 161 or higher level computer course, or Education 305.

1 Selected from Anthropology, Economics, Geography, Political Science, Psychology, or Sociology.

† For each of these courses, a grade of "C" or better is required. In addition, an adjusted or degree grade point average of 2.0 must be earned for these courses.

Sciences or Mathematics Requirements

Concentration: Biology (Minor: Chemistry)

First Year

General Biology 151	3 hours
Biology Lab 152	1 hour
General Biology 153	3 hours
Biology Lab 154	1 hour
Earth Science 101-103	4 hours
Microbiology 205-207	4 hours

Second Year

Chemistry 121-123	4 hours
Chemistry 122-124	4 hours
General Biology	3 hours

Third Year

General Biology 395-404	6 hours
Chemistry 261-263	4 hours
Earth Science 102-104	4 hours
General Biology 312	3 hours
Physics 191-193	4 hours
Physics 192-194	4 hours

Fourth Year

Zoology 241 or 392	4 hours
GBIO 402 or Zoo 483	3-4
Chemistry 251	hours
Chemistry 254 or 335	3 hours
General Biology 441	2-3
	hours
	1 hour

Concentration: Biology (Minor: Mathematics)

First Year

General Biology 151	3 hours
Biology Lab 152	1 hour
General Biology 153	3 hours
Biology Lab 154	1 hour

Second Year

Chemistry 121-123	4 hours
Chemistry 122-124	4 hours
General Biology 200	3 hours
Mathematics 200	5 hours
Mathematics 201	5 hours
Microbiology 205-207	4 hours

Third Year

General Biology 395-404	6 hours
General Biology 312	3 hours
Mathematics 309	3 hours
Physics 191-193	4 hours
Physics 192-194	4 hours

Fourth Year

Zoology 241 or 392	4 hours
GBIO 402 or Zoo 483	3-4
Earth Science 101-103	hours
Earth Science 102-104	4 hours
General Biology 441	4 hours
Mathematics 311	1 hour
	3 hours

Concentration: Biology (Minor: Physics)

First Year

General Biology 151	3 hours
Biology Lab 152	1 hours
General Biology 153	3 hours
Biology Lab 154	1 hour

Second Year

Chemistry 121-123	4 hours
Chemistry 122-124	4 hours
General Biology 200	3 hours
Mathematics 200	5 hours
Mathematics 201	5 hours
Microbiology 205-207	4 hours

Third Year

General Biology 395-404	6 hours
Earth Science 101-103	4 hours
Earth Science 102-104	4 hours
General Biology 312	3 hours
Physics 221-223	4 hours
Physics 222-224	4 hours

Fourth Year

Zoology 241 or 392	4 hours
GBIO 402 or Zoo 483	3-4
General Biology 441	hours
Physics 301-303	1 hours
Physics 411 or 412	4 hours
Physics Elective	1 hour
	3 hours

Concentration: Chemistry (Minor: Biology)

First Semester

General Biology 151	3 hours
Biology Lab 152	1 hour

Second Semester

Chemistry 121-123	4 hours
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Third Semester

Chemistry 122-124	4 hours
General Biology 153	3 hours
Biology Lab 154	1 hour
Earth Science 101-103	4 hours

Fourth Semester

Chemistry 253	2 hours
Microbiology 205-207	4 hours
Mathematics 163	3 hours

Fifth Semester

Chemistry 251	3 hours
Chemistry 254	1 hour
Physics 191-193	

Sixth Semester

Earth Science 102-104	4 hours
Physics 192-194	4 hours
Biology (200+ level)	3 hours

Seventh Semester

Eighth Semester

Chemistry 261-263	4 hours	Chemistry 281-283	4 hours
Chemistry 290	3 hours	Chemistry 335	3 hours
Biology (200+ level)	3 hours		
Physics	3 hours		

Concentration: Chemistry (Minor: Mathematics)

First Semester

General Biology 151	3 hours
Biology Lab 152	1 hour

Second Semester

General Biology 153	3 hours
Biology Lab 154	1 hour

Third Semester

Chemistry 121-123	4 hours
Physics 191-193	4 hours
Earth Science 101-103	4 hours

Fourth Semester

Chemistry 122-124	4 hours
Physics 192-194	4 hours

Fifth Semester

Chemistry 251	3 hours
Chemistry 254	2 hours
Math 200	5 hours

Sixth Semester

Chemistry 253	2 hours
Chemistry 261-263	4 hours
Math 201	5 hours

Seventh Semester

Chemistry 281-283	4 hours
Earth Science 102-104	4 hours
Chemistry 290	3 hours
Math 309	3 hours

Eighth Semester

Chemistry 335	3 hours
Math 311	3 hours

Concentration: Chemistry (Minor: Physics)

First Semester

General Biology 151	3 hours
Biology Lab 152	1 hour

Second Semester

Chemistry 121-123	4 hours
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Third Semester

Fourth Semester

Chemistry 122-124	4 hours	Chemistry 253	2 hours
Math 200	5 hours	Math 201	5 hours
Physics 130	1 hour		

Fifth Semester

Chemistry 251	3 hours
Chemistry 254	2 hours
Physics 221-223	4 hours
Earth Science 101-103	4 hours

Sixth Semester

Chemistry 261-263	4 hours
Physics 222-224	4 hours
Chemistry 335	3 hours

Seventh Semester

Chemistry 281-283	4 hours
General Biology 153	3 hours
Biology Lab 154	1 hour
Earth Science 102-104	4 hours

Eighth Semester

Physics 301-303	4 hours
Physics 351	3 hours

Concentration: Physics (Minor: Mathematics)**First Semester**

General Biology 151	3 hours
Biology Lab 152	1 hour

Second Semester

Chemistry 121-123	4 hours
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Third Semester

Chemistry 122-124	4 hours
Math 200	5 hours
Physics 130	1 hour

Fourth Semester

Physics 221-223	4 hours
Math 201	5 hours

Fifth Semester

Physics 222-224	4 hours
Math 223	3 hours
Earth Science 101-103	4 hours

Sixth Semester

Physics 301-303	4 hours
Math 309	3 hours
Earth 102-104	4 hours

Seventh Semester

Physics 312-314	4 hours
Physics 321	3 hours
Physics 332	3 hours
General Biology 153	3 hours
Biology Lab 154	1 hour

Eighth Semester

Physics 335	3 hours
Physics 351	3 hours

