

School of MATHEMATICAL AND NATURAL SCIENCES

LOCATION: Science Center (27)

CAMPUS TELEPHONE: (870) 460-1066

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FACULTY/MISSION

Professors Annulis (Chair), Bacon, Edson, McConnell, Sundell, Webb, and Wiley; Associate Professors Abedi, Godwin, and Nicholson; Assistant Professors Bramlett, Guenter, Lynde, Nordeen, Roberts and Sayyar; Instructors Chapman, Leslie, Nelson, and Zeide; Laboratory Instructor Vaughn.

The Division of Mathematics and Sciences comprises the disciplines of biology, chemistry, mathematics, physics, physical science, astronomy, earth science, and computer science.

The mission of the Division of Mathematics and Sciences is to offer specialization in biology, chemistry, mathematics, physics, and physical science and to provide opportunities for all students to enhance their understanding of science and mathematics. Curricula offered in the Division prepare graduates for careers in industry and teaching, for graduate studies, and for admission to professional programs including allied health, dentistry, medicine, optometry, pharmacy, and engineering. This mission is fulfilled through the following goals:

1. To provide academic programs which promote the development of professional scientists and mathematicians and provide opportunities for all students to enhance their understanding of the natural sciences and mathematics.
2. To prepare individuals for successful careers in industry and teaching, and for graduate studies in science and mathematics.
3. To provide curricula for pre-professional studies in engineering, dentistry, medicine, optometry, pharmacy, and allied health (physical therapy, radiological technology, respiratory therapy, medical technology, and dental hygiene).
4. To provide technical and analytical courses to support studies in agriculture, forestry, nursing, physical education, pre-veterinary medicine, psychology, and wildlife management.
5. To serve the general education program through courses in astronomy, biology, chemistry, earth science, mathematics, physics, and physical science that provide a basic background for a baccalaureate degree.

Faculty of the Division of Mathematics and Sciences provide programs of study in Biology, Chemistry, Mathematics, Physics, and Physical Science. These programs with their required courses may be found in the programs of study section of the catalog.

Major and Minor Requirements

All baccalaureate degrees require at least 124 hours of college credit, courses at the 1000-level or above. These courses must include the General Education requirements found on page #@ and at least 40 hours of 3000-4000 level courses.

BIOLOGY MAJOR Bachelor of Science

Students who plan to be certified to teach at the secondary level must complete the requirements for secondary teacher certification found in the School of Education section of this catalog. In addition, they must take SCED 4663 Practicum in Secondary Science Teaching Methods and CHEM 4634 Biochemistry I. In preparation for passing the National Teachers Examination, students are encouraged to take course work in earth science and astronomy.

Major Requirements 38 hours

BIOL 1153 General Zoology
BIOL 1161 General Zoology Laboratory
BIOL 1144 General Botany
BIOL 1403 Cell and Molecular Biology
BIOL 3354 Genetics
BIOL 3484 General Ecology
BIOL 3553 Microbiology
BIOL 3561 Microbiology Laboratory
BIOL 3801 Mammalian Anatomy Laboratory
BIOL 4602 Seminar in Evolutionary Biology
BIOL 4634 Vertebrate Physiology
BIOL Electives 3000-4000 level

Choose one of the following

BIOL 3434 Regional Flora
BIOL 3314 Ichthyology/Herpetology
BIOL 3324 Ornithology/Mammalogy

Choose one of the following

BIOL 3594 Invertebrate Zoology
BIOL 4664 Mammalian Histology
BIOL 4624 Vertebrate Embryology

Supportive Requirements 28-30 hours

CHEM 1103 General Chemistry I
CHEM 1113 General Chemistry II
CHEM 1121 General Chemistry I Laboratory
CHEM 1131 General Chemistry II Laboratory
CHEM 3404 Organic Chemistry I
CHEM 3414 Organic Chemistry II

Choose one of the following

MATH 1033 Trigonometry and
MATH 1043 College Algebra

OR

MATH 1174 Precalculus

Choose one of the following course sequences

PHYS 2203 General Physics I and
PHYS 2213 General Physics II

OR

PHYS 2313 University Physics I and

PHYS 2323 University Physics II

PHYS 2231 Physics Laboratory I

PHYS 2241 Physics Laboratory II

BIOLOGY MINOR

Minor Requirements 24 hours

BIOL 1153 General Zoology
BIOL 1161 General Zoology Laboratory
BIOL 1144 General Botany
BIOL 1403 Cell and Molecular Biology
BIOL 3354 Genetics
BIOL 3484 General Ecology
Biology electives: 5 hours of courses at the 3000-4000 level

CHEMISTRY MAJOR
Bachelor of Science

Major Requirements 36 hours

CHEM 1103 General Chemistry I
CHEM 1113 General Chemistry II
CHEM 1121 General Chemistry I Laboratory
CHEM 1131 General Chemistry II Laboratory
CHEM 3314 Quantitative Analysis
CHEM 3404 Organic Chemistry I
CHEM 3414 Organic Chemistry II
CHEM 3444 Instrumental Analysis
CHEM 4704 Physical Chemistry I
CHEM 4714 Physical Chemistry II
Chemistry electives: 4 hours at the 3000-4000 level

Supportive Requirements 24-26 hours

Choose one of the following

 MATH 1033 Trigonometry and
 MATH 1043 College Algebra
 OR
 MATH 1174 Precalculus
MATH 2254 Calculus I
MATH 2264 Calculus II
MATH 2274 Calculus III
PHYS 2313 University Physics I
PHYS 2323 University Physics II
PHYS 2231 Laboratory Physics I
PHYS 2241 Laboratory Physics II

Students who plan to be certified to teach at the secondary level can complete the major or minor in Chemistry and the requirements for secondary teacher certification found in the School of Education section of this catalog. They must take SCED 4663 Practicum in Secondary Science Teaching Methods. In preparation for passing the National Teachers Examination, students are encouraged to take course work in earth science and astronomy.

CHEMISTRY Minor Requirements 24 hours

CHEM 1103 General Chemistry I
CHEM 1113 General Chemistry II
CHEM 1121 General Chemistry I Laboratory
CHEM 1131 General Chemistry II Laboratory
CHEM 3314 Quantitative Analysis
CHEM 3404 Organic Chemistry I
CHEM 3414 Organic Chemistry II
Chemistry electives: 4 hours at the 3000-4000 level

GENERAL SCIENCE MINOR

Minor Requirements 27 hours

BIOL 1144 General Botany
BIOL 1153 General Zoology
BIOL 1161 General Zoology Laboratory

CHEM 1103 General Chemistry I
CHEM 1113 General Chemistry II
CHEM 1121 General Chemistry I Laboratory
CHEM 1131 General Chemistry II Laboratory
ESCI 1063 Introductory Earth Science
PHYS 2203 General Physics I
PHYS 2213 General Physics II
PHYS 2231 Physics Laboratory I
PHYS 2241 Physics Laboratory II

MATHEMATICS MAJOR
Bachelor of Science

Major Requirements 33 hours

MATH 2254 Calculus I
MATH 2264 Calculus II
MATH 2274 Calculus III
MATH 3403 Probability & Statistics
MATH 3453 Abstract Algebra
MATH 3463 Linear Algebra
MATH 4613 Differential Equations

Mathematics electives: 9 hours at the 2000-4000 level (except courses specifically excluded).

Supportive Requirements 11 hours

One of the following courses:

CIS 3423 Business Application Programming Using COBOL
CIS 3433 Business Applications Programming in "C"
CS 2213 Pascal Programming
CS 2253 FORTRAN Programming

Eight hours from:

CHEM 1103 General Chemistry I
CHEM 1113 General Chemistry II
CHEM 1121 General Chemistry I Laboratory
CHEM 1131 General Chemistry II Laboratory
PHYS 2203 General Physics I
PHYS 2213 General Physics II
PHYS 2313 University Physics I
PHYS 2323 University Physics II
PHYS 2231 Physics Laboratory I
PHYS 2241 Physics Laboratory II

Students may use General Physics or University Physics, but not both.

Those planning to teach must use MATH 2233 History of Mathematics and MATH 3423 Geometry as their elective courses in mathematics. In addition to other required Education courses, those students must take MAED 4663 Methods of Teaching Mathematics.

MATHEMATICS Minor Requirements 24 hours

MATH 2254 Calculus I
MATH 2264 Calculus II
MATH 2274 Calculus III

Mathematics electives: 9 hours at the 3000-4000 level (except courses specifically excluded).

One of the following courses:

- CIS 3423 Business Application Programming Using COBOL
- CIS 3433 Business Applications Programming in "C"
- CS 2213 Pascal Programming
- CS 2253 FORTRAN Programming

PHYSICAL SCIENCE MAJOR
Bachelor of Science

Major Requirements 63-65 hours

- ASTR 1033 Elements of Astronomy
- CHEM 1103 General Chemistry I
- CHEM 1113 General Chemistry II
- CHEM 1121 General Chemistry I Laboratory
- CHEM 1131 General Chemistry II Laboratory
- CHEM 3404 Organic Chemistry
- ESCI 1063 Intro to Earth Science
- ESCI 1051 Earth Science Laboratory

Choose one of the following

- MATH 1033 Trigonometry and
- MATH 1043 College Algebra

OR

- MATH 1174 Precalculus
- MATH 2254 Calculus I
- MATH 2264 Calculus II

Choose one of the following course sequences

- PHYS 2203 General Physics I and
- PHYS 2213 General Physics II

OR

- PHYS 2313 University Physics I and
- PHYS 2323 University Physics II
- PHYS 2231 Physics Laboratory I
- PHYS 2241 Physics Laboratory II
- PHYS 3404 Modern Physics

Restricted Electives

- 4 hours from Chemistry (3000 or above)
- 3 hours from Physics or Astronomy (3000 or above)
- 4 hours from Physics (3000 or above)
- 6 hours from Chemistry, Mathematics, or Physics (3000 or above)

One of the following computer programming languages

- CIS 2203 Programming Microcomputer Systems (BASIC) **or**
- CS 2213 Pascal Programming **or**
- CS 2253 FORTRAN Programming

Students who plan to be certified to teach at the secondary level must complete the requirements for secondary teacher certification found in the School of Education section of this catalog.

PHYSICAL SCIENCE MINOR

Minor Requirements 24 hours

- CHEM 1103 General Chemistry I
- CHEM 1113 General Chemistry II
- CHEM 1121 General Chemistry I Laboratory

CHEM 1131 General Chemistry II Laboratory

CHEM 3404 Organic Chemistry

Choose one of the following course sequences

PHYS 2203 General Physics I and

PHYS 2213 General Physics II

OR

PHYS 2313 University Physics I and

PHYS 2323 University Physics II

PHYS 2231 Physics Laboratory I

PHYS 2241 Physics Laboratory II

PHYS 3404 Modern Physics

PHYSICS MINOR

Minor Requirements..... 24 hours

Choose one of the following

PHYS 2203 General Physics I and

PHYS 2213 General Physics II

OR

PHYS 2313 University Physics I and

PHYS 2323 University Physics II

PHYS 2231 Physics Lab I

PHYS 2241 Physics Lab II

PHYS 3404 Modern Physics

PHYS 3444 Optics

PHYS 4603 Mechanics

Electives: 5 hours from the following:

PHYS 2354 Radiation Physics

ASTR 1033 Elements of Astronomy

ASTR 1041 Astronomy Lab

ASTR 3503 Advanced Astronomy