

INTEGRATED SCIENCE - B.S.E.

College of Education Health and Human Services
School of Teaching, Learning and Curriculum Studies
www.kent.edu/ehhs/tlcs

About This Program

The Bachelor of Science in Education in Integrated Science prepares you to teach science to middle and high school students through a multidisciplinary approach. With a curriculum that combines biology, chemistry, physics and earth science, you'll be equipped to create engaging and effective lesson plans. Read more...

Contact Information

- Program Coordinator: **Kristine E. Pytash, Ph.D.** | kpytash@kent.edu | 330-672-0641
- Speak with an Advisor
- Chat with an Admissions Counselor

Program Delivery

- **Delivery:**
 - In person
- **Location:**
 - Kent Campus

Examples of Possible Careers and Salaries*

Agricultural sciences teachers, postsecondary

- 2.1% slower than the average
- 11,400 number of jobs
- \$90,340 potential earnings

Atmospheric, earth, marine, and space sciences teachers, postsecondary

- 1.9% slower than the average
- 13,100 number of jobs
- \$94,520 potential earnings

Biological science teachers, postsecondary

- 9.3% much faster than the average
- 64,700 number of jobs
- \$85,600 potential earnings

Chemistry teachers, postsecondary

- 4.3% about as fast as the average
- 26,400 number of jobs
- \$80,400 potential earnings

Education teachers, postsecondary

- 4.8% about as fast as the average
- 77,300 number of jobs
- \$65,440 potential earnings

Environmental science teachers, postsecondary

- 3.7% about as fast as the average
- 7,600 number of jobs
- \$84,740 potential earnings

Forestry and conservation science teachers, postsecondary

- 2.2% slower than the average
- 2,100 number of jobs
- \$87,400 potential earnings

Middle school teachers, except special and career/technical education

- 3.6% about as fast as the average
- 627,100 number of jobs
- \$60,810 potential earnings

Physics teachers, postsecondary

- 4.4% about as fast as the average
- 17,100 number of jobs
- \$90,400 potential earnings

Secondary school teachers, except special and career/technical education

- 3.8% about as fast as the average
- 1,050,800 number of jobs
- \$62,870 potential earnings

Accreditation

Council for the Accreditation of Educator Preparation

* Source of occupation titles and labor data comes from the U.S. Bureau of Labor Statistics'

Occupational Outlook Handbook. Data comprises projected percent change in employment over the next 10 years; nation-wide employment numbers; and the yearly median wage at which half of the workers in the occupation earned more than that amount and half earned less.

Admission Requirements

Admission to this major is selective. Admission to the college does not guarantee admission to a major and/or admission to professional coursework for a selective admission program. To be admitted directly into a teacher education program, it is required that new freshmen have a 2.750 high school GPA. Students who do not meet the GPA requirement at the time of admission for this major will be admitted to the EHHS General non-degree program until which time they have established a Kent State GPA of 2.750. They may then submit a change of program to declare this major.

Current Kent State and Transfer Students: Active Kent State students who wish to change their major must have attempted a minimum 12 credit hours at Kent State and meet all admission criteria listed above to be admitted. Students who have not attempted 12 credit hours at Kent State will be evaluated for admission based on their high school GPA for new students or transfer GPA for transfer students. Transfer students who have not attempted 12 credit hours of college-level coursework at

Kent State and/or other institutions will be evaluated based on both their high school GPA and college GPA.

International Students: All international students must provide proof of English language proficiency unless they meet specific exceptions. For more information, visit the admissions website for international students.

Program Requirements

| Code | Title | Credit Hours |
|--|--|--------------|
| Major Requirements (courses count in major GPA) (min C grade required in all courses) | | |
| BSCI 10110 | BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB) | 4 |
| BSCI 10120 | BIOLOGICAL FOUNDATIONS (ELR) (KBS) (KLAB) | 4 |
| BSCI 30140 | CELL BIOLOGY | 4 |
| BSCI 30156 | ELEMENTS OF GENETICS | 3 |
| CHEM 10060 | GENERAL CHEMISTRY I (KBS) | 4 |
| CHEM 10061 | GENERAL CHEMISTRY II (KBS) | 4 |
| CHEM 10062 | GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB) | 1 |
| CHEM 10063 | GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB) | 1 |
| CHEM 20481 | BASIC ORGANIC CHEMISTRY I | 4 |
| ESCI 11040 | HOW THE EARTH WORKS (KBS) | 3 |
| ESCI 11041 | HOW THE EARTH WORKS LABORATORY (KBS) (KLAB) | 1 |
| ESCI 11042 | EARTH AND LIFE THROUGH TIME (KBS) | 3 |
| ESCI 11043 | EARTH AND LIFE THROUGH TIME LABORATORY (KBS) (KLAB) | 1 |
| GEOG 41073 | CONSERVATION OF NATURAL RESOURCES | 3 |
| PHY 21430 | FRONTIERS IN ASTRONOMY (KBS) | 3 |
| Additional Requirements (courses do not count in major GPA) | | |
| ADED 20000 | TOPICS IN SOCIAL JUSTICE IN TEACHING AND LEARNING (min C grade) ¹ | 3 |
| ADED 32142 | PRINCIPLES OF TEACHING ADOLESCENTS (WIC) (min C grade) ¹ | 3 |
| ADED 32277 | TEACHING SCIENCE IN SECONDARY SCHOOLS (min C grade) ¹ | 3 |
| ADED 42277 | TOPICS IN SECONDARY SCHOOL SCIENCE TEACHING (min C grade) | 3 |
| ADED 42292 | FIELD WORK PRACTICUM (ELR) (min C grade) ¹ | 3 |
| ADED 42392 | SECONDARY STUDENT TEACHING (ELR) ¹ | 9 |
| ADED 49525 | INQUIRY INTO PROFESSIONAL PRACTICE (min C grade) | 3 |
| CI 47330 | READING AND WRITING IN ADOLESCENCE/ADULTHOOD (min C grade) | 3 |
| CULT 29535 | EDUCATION IN A DEMOCRATIC SOCIETY (min C grade) | 3 |
| EPSY 29525 | EDUCATIONAL PSYCHOLOGY (min C grade) | 3 |
| ETEC 39525 | EDUCATIONAL TECHNOLOGY (min C grade) | 3 |
| MATH 10041 | INTRODUCTORY STATISTICS (KMCR) | 3-4 |
| or MATH 30011 | BASIC PROBABILITY AND STATISTICS | |
| MATH 11010 | ALGEBRA FOR CALCULUS (KMCR) | 3 |
| MATH 11022 | TRIGONOMETRY (KMCR) | 3 |
| MATH 12002 | ANALYTIC GEOMETRY AND CALCULUS I (KMCR) | 5 |
| PHIL 11001 | INTRODUCTION TO PHILOSOPHY (DIVG) (KHUM) | 3 |
| PSYC 11762 | GENERAL PSYCHOLOGY (DIVD) (KSS) | 3 |

| | | |
|---|---|----------------|
| SOC 12050 | INTRODUCTION TO SOCIOLOGY (DIVD) (KSS) | 3 |
| SPED 23000 | INTRODUCTION TO EXCEPTIONALITIES (DIVD) (min C grade) | 3 |
| UC 10001 | FLASHES 101 | 1 |
| Kent Core Composition | | 6 |
| Kent Core Humanities and Fine Arts (minimum one course from each) | | 6 |
| Concentrations | | |
| Choose from the following: | | 24-27 |
| Chemistry | | |
| Earth Science | | |
| Life Science | | |
| Physics | | |
| Minimum Total Credit Hours: | | 145-148 |

¹ Teacher candidates are only permitted to repeat a field experience course once. Please see Repeating Field Experience Courses in Teacher Education Programs policy for details.

Chemistry Concentration Requirements

| Code | Title | Credit Hours |
|---|--|--------------|
| Concentration Requirements (courses count in major GPA; min C grade required in all courses) | | |
| CHEM 30105 | ANALYTICAL CHEMISTRY I | 3 |
| CHEM 30284 | INTRODUCTORY BIOLOGICAL CHEMISTRY | 4 |
| CHEM 30301 | INORGANIC CHEMISTRY I | 3 |
| CHEM 30475 | ORGANIC CHEMISTRY LABORATORY I (ELR) | 1 |
| CHEM 40567 | PHYSICAL CHEMISTRY FOR LIFE SCIENCES | 4 |
| PHY 13001 | GENERAL COLLEGE PHYSICS I (KBS) | 4 |
| PHY 13002 | GENERAL COLLEGE PHYSICS II (KBS) | 4 |
| PHY 13021 | GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) | 1 |
| PHY 13022 | GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB) | 1 |
| Minimum Total Credit Hours: | | 25 |

Earth Science Concentration Requirements

| Code | Title | Credit Hours |
|---|--|--------------|
| Concentration Requirements (courses count in major GPA; min C grade required in all courses) | | |
| CHEM 30301 | INORGANIC CHEMISTRY I | 3 |
| ESCI 21080 | ALL ABOUT THE OCEANS (KBS) | 3 |
| ESCI 23063 | EARTH MATERIALS I | 4 |
| ESCI 31070 | EARTH MATERIALS II (WIC) | 4 |
| or ESCI 32066 | GEOMORPHOLOGY | |
| PHY 13001 | GENERAL COLLEGE PHYSICS I (KBS) | 4 |
| PHY 13002 | GENERAL COLLEGE PHYSICS II (KBS) | 4 |
| PHY 13021 | GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) | 1 |
| PHY 13022 | GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB) | 1 |
| Minimum Total Credit Hours: | | 24 |

Life Science Concentration Requirements

| Code | Title | Credit Hours |
|---|--|--------------|
| Concentration Requirements (courses count in major GPA; min C grade required in all courses) | | |
| BSCI 30360 | GENERAL ECOLOGY | 4 |
| BSCI 40163 | EVOLUTION | 3 |
| CHEM 30284 | INTRODUCTORY BIOLOGICAL CHEMISTRY | 4 |
| ESCI 21062 | ENVIRONMENTAL EARTH SCIENCE (KBS) | 3 |
| PHY 13001 | GENERAL COLLEGE PHYSICS I (KBS) | 4 |
| PHY 13002 | GENERAL COLLEGE PHYSICS II (KBS) | 4 |
| PHY 13021 | GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) | 1 |
| PHY 13022 | GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB) | 1 |
| Minimum Total Credit Hours: | | 24 |

Physics Concentration Requirements

| Code | Title | Credit Hours |
|---|--|--------------|
| Concentration Requirements (courses count in major GPA; min C grade required in all courses) | | |
| CHEM 40567 | PHYSICAL CHEMISTRY FOR LIFE SCIENCES | 4 |
| MATH 12003 | ANALYTIC GEOMETRY AND CALCULUS II | 5 |
| PHY 23101 | GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB) | 5 |
| PHY 23102 | GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB) | 5 |
| PHY 30020 | INTERMEDIATE PHYSICS LABORATORY (WIC) | 2 |
| PHY 32511 | ELECTRONICS | 3-4 |
| or PHY 36002 | APPLICATIONS OF MODERN PHYSICS | |
| PHY 36001 | INTRODUCTORY MODERN PHYSICS | 3 |
| Minimum Total Credit Hours: | | 27 |

Progression Requirements

Students must meet all professional requirements for admission to advanced study. To be admitted, students must display evidence of the following:

- Adequate communication skills
- Sound content area knowledge (language arts, mathematics, science or social studies)
- Basic understanding of the teaching profession
- Basic understanding of adolescents

Dispositions aligned with the conceptual framework of the College of Education, Health and Human Services, including being open-minded, flexible, caring and responsible.

Faculty will select the most qualified applicants based on an interview; letters of recommendation, GPA¹, and performance in English coursework.

Applicants to the Integrated Science major must have experience working with young adults in a supervisory capacity, such as tutoring, camp counseling, volunteer work or related experience. Students should contact the College of Education, Health and Human Services' Vacca Office of Student Services, 304 White Hall, during the first year of study to inquire about the procedures and criteria associated with advanced study.

¹ Undergraduate students who have not completed a minimum of 12 Kent State University credit hours will be evaluated for advanced study and professional phase based on their high school GPA for new freshmen or transfer GPA for transfer students.

Graduation Requirements

| Minimum Major GPA | Minimum Overall GPA |
|-------------------|---------------------|
| 2.600 | 2.750 |

Double Majors/Dual Degrees

Students seeking to declare an additional teacher education major in the B.S.E. degree (double major), or in a different degree (dual degree) may have the double major/dual degree approved as long as the following requirements are met:

1. Approval is received from the academic unit administrating each major. A program of study for those interested in pursuing a double major must be approved in writing by faculty from each major area prior to admission to advanced study.
2. All required content courses are completed for each major
3. All required methods courses are completed for each major.
4. Separate practicum and inquiry courses are completed for each major as listed below:
 - a. ADED 42292 (or the equivalent required by the major outside the college)
 - b. ADED 49525 (or the equivalent required by the major outside the college)
5. Students who have two majors from among the following only need to take ADED 42392, consisting of a 16-week classroom experience involving both subject areas: Life Sciences, Earth Science, Physical Sciences, Integrated Science, Integrated Mathematics, Life Science/Chemistry, Integrated Social Studies and/or Integrated Language Arts.
6. Students who have a second major not included in the list above (#5) will have their student teaching requirements determined by faculty from both program areas at the time the program of study is developed, with a minimum 16 weeks spent in the classroom.

Licensure information

Candidates seeking Ohio licensure are required to pass specific assessments in order to apply for licensure. See Ohio Department of Education-Educator Preparation website for more information on assessments specific to licensure type. Taking and passing the licensure tests prior to graduation is encouraged but not required.

Students must apply for State of Ohio Licensure (defined by completion of all licensure program requirements) within 12 months of program completion. After 12 months, applicants must meet State approved program/licensure requirements that are in effect at the time of application. This means that students who apply after the 12 month deadline may have to take additional coursework if the content, methods courses, program requirements, or licensure requirements have changed from the catalog in force.

Roadmaps

Chemistry Concentration

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

| Semester One | | Credits |
|--|---|-----------|
| BSCI 10120 | BIOLOGICAL FOUNDATIONS (ELR) (KBS) (KLAB) | 4 |
| MATH 11010 | ALGEBRA FOR CALCULUS (KMCR) | 3 |
| PSYC 11762 | GENERAL PSYCHOLOGY (DIVD) (KSS) | 3 |
| UC 10001 | FLASHES 101 | 1 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 14 |
| Semester Two | | |
| ! BSCI 10110 | BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB) | 4 |
| ! CULT 29535 | EDUCATION IN A DEMOCRATIC SOCIETY | 3 |
| MATH 11022 | TRIGONOMETRY (KMCR) | 3 |
| SOC 12050 | INTRODUCTION TO SOCIOLOGY (DIVD) (KSS) | 3 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 16 |
| Semester Three | | |
| ADED 20000 | TOPICS IN SOCIAL JUSTICE IN TEACHING AND LEARNING | 3 |
| ! CHEM 10060 | GENERAL CHEMISTRY I (KBS) | 4 |
| ! CHEM 10062 | GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB) | 1 |
| ! MATH 12002 | ANALYTIC GEOMETRY AND CALCULUS I (KMCR) | 5 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 16 |
| Semester Four | | |
| BSCI 30156 | ELEMENTS OF GENETICS | 3 |
| ! CHEM 10061 | GENERAL CHEMISTRY II (KBS) | 4 |
| ! CHEM 10063 | GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB) | 1 |
| ! EPSY 29525 | EDUCATIONAL PSYCHOLOGY | 3 |
| PHIL 11001 | INTRODUCTION TO PHILOSOPHY (DIVG) (KHUM) | 3 |
| Credit Hours | | 14 |
| Semester Five | | |
| Requirement: minimum 2.750 overall GPA required by end of term and minimum 2.600 major GPA | | |
| BSCI 30140 | CELL BIOLOGY | 4 |
| CHEM 20481 | BASIC ORGANIC CHEMISTRY I | 4 |
| CHEM 30475 | ORGANIC CHEMISTRY LABORATORY I (ELR) | 1 |
| ESCI 11040 | HOW THE EARTH WORKS (KBS) | 3 |
| ESCI 11041 | HOW THE EARTH WORKS LABORATORY (KBS) (KLAB) | 1 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 16 |
| Semester Six | | |
| Requirement: minimum 2.750 overall GPA required by end of term and minimum 2.600 major GPA | | |
| CHEM 30284 | INTRODUCTORY BIOLOGICAL CHEMISTRY | 4 |
| CHEM 30301 | INORGANIC CHEMISTRY I | 3 |
| ESCI 11042 | EARTH AND LIFE THROUGH TIME (KBS) | 3 |
| ESCI 11043 | EARTH AND LIFE THROUGH TIME LABORATORY (KBS) (KLAB) | 1 |
| PHY 21430 | FRONTIERS IN ASTRONOMY (KBS) | 3 |

| SPED 23000 | INTRODUCTION TO EXCEPTIONALITIES (DIVD) | 3 |
|--|--|------------|
| Credit Hours | | 17 |
| Semester Seven | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! ADED 32142 | PRINCIPLES OF TEACHING ADOLESCENTS (WIC) | 3 |
| CHEM 30105 | ANALYTICAL CHEMISTRY I | 3 |
| ETEC 39525 | EDUCATIONAL TECHNOLOGY | 3 |
| PHY 13001 | GENERAL COLLEGE PHYSICS I (KBS) | 4 |
| PHY 13021 | GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) | 1 |
| Credit Hours | | 14 |
| Semester Eight | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! ADED 32277 | TEACHING SCIENCE IN SECONDARY SCHOOLS | 3 |
| CI 47330 | READING AND WRITING IN ADOLESCENCE/ADULTHOOD | 3 |
| GEOG 41073 | CONSERVATION OF NATURAL RESOURCES | 3 |
| PHY 13002 | GENERAL COLLEGE PHYSICS II (KBS) | 4 |
| PHY 13022 | GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB) | 1 |
| Credit Hours | | 14 |
| Semester Nine | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! ADED 42277 | TOPICS IN SECONDARY SCHOOL SCIENCE TEACHING | 3 |
| ! ADED 42292 | FIELD WORK PRACTICUM (ELR) | 3 |
| CHEM 40567 | PHYSICAL CHEMISTRY FOR LIFE SCIENCES | 4 |
| MATH 10041 | INTRODUCTORY STATISTICS (KMCR) | 3 |
| or | or BASIC PROBABILITY AND STATISTICS | |
| MATH 30011 | | |
| Credit Hours | | 13 |
| Semester Ten | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ADED 42392 | SECONDARY STUDENT TEACHING (ELR) | 9 |
| ! ADED 49525 | INQUIRY INTO PROFESSIONAL PRACTICE | 3 |
| Credit Hours | | 12 |
| Minimum Total Credit Hours: | | 146 |

Earth Science Concentration

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

| Semester One | | Credits |
|--|---|---------|
| ESCI 11040 | HOW THE EARTH WORKS (KBS) | 3 |
| ESCI 11041 | HOW THE EARTH WORKS LABORATORY (KBS) (KLAB) | 1 |
| MATH 11010 | ALGEBRA FOR CALCULUS (KMCR) | 3 |
| PSYC 11762 | GENERAL PSYCHOLOGY (DIVD) (KSS) | 3 |
| UC 10001 | FLASHES 101 | 1 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 14 |
| Semester Two | | |
| ! CULT 29535 | EDUCATION IN A DEMOCRATIC SOCIETY | 3 |
| ESCI 11042 | EARTH AND LIFE THROUGH TIME (KBS) | 3 |
| ESCI 11043 | EARTH AND LIFE THROUGH TIME LABORATORY (KBS) (KLAB) | 1 |
| MATH 11022 | TRIGONOMETRY (KMCR) | 3 |
| SOC 12050 | INTRODUCTION TO SOCIOLOGY (DIVD) (KSS) | 3 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 16 |
| Semester Three | | |
| ! CHEM 10060 | GENERAL CHEMISTRY I (KBS) | 4 |
| ! CHEM 10062 | GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB) | 1 |
| ESCI 21080 | ALL ABOUT THE OCEANS (KBS) | 3 |
| ! MATH 12002 | ANALYTIC GEOMETRY AND CALCULUS I (KMCR) | 5 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 16 |
| Semester Four | | |
| ADED 20000 | TOPICS IN SOCIAL JUSTICE IN TEACHING AND LEARNING | 3 |
| ! CHEM 10061 | GENERAL CHEMISTRY II (KBS) | 4 |
| ! CHEM 10063 | GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB) | 1 |
| ! EPSY 29525 | EDUCATIONAL PSYCHOLOGY | 3 |
| PHIL 11001 | INTRODUCTION TO PHILOSOPHY (DIVG) (KHUM) | 3 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 17 |
| Semester Five | | |
| Requirement: minimum 2.750 overall GPA required by end of term and minimum 2.600 major GPA | | |
| CHEM 20481 | BASIC ORGANIC CHEMISTRY I | 4 |
| ESCI 23063 | EARTH MATERIALS I | 4 |
| PHY 13001 | GENERAL COLLEGE PHYSICS I (KBS) | 4 |
| PHY 13021 | GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) | 1 |
| Credit Hours | | 13 |
| Semester Six | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| BSCI 10120 | BIOLOGICAL FOUNDATIONS (ELR) (KBS) (KLAB) | 4 |
| ESCI 31070 | EARTH MATERIALS II (WIC) | 4 |
| PHY 13002 | GENERAL COLLEGE PHYSICS II (KBS) | 4 |
| PHY 13022 | GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB) | 1 |

| SPED 23000 | INTRODUCTION TO EXCEPTIONALITIES (DIVD) | 3 |
|--|---|-----|
| Credit Hours | | 16 |
| Semester Seven | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! ADED 32142 | PRINCIPLES OF TEACHING ADOLESCENTS (WIC) | 3 |
| BSCI 10110 | BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB) | 4 |
| CI 47330 | READING AND WRITING IN ADOLESCENCE/ADULTHOOD | 3 |
| ETEC 39525 | EDUCATIONAL TECHNOLOGY | 3 |
| Credit Hours | | 13 |
| Semester Eight | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! ADED 32277 | TEACHING SCIENCE IN SECONDARY SCHOOLS | 3 |
| BSCI 30140 | CELL BIOLOGY | 4 |
| BSCI 30156 | ELEMENTS OF GENETICS | 3 |
| CHEM 30301 | INORGANIC CHEMISTRY I | 3 |
| PHY 21430 | FRONTIERS IN ASTRONOMY (KBS) | 3 |
| Credit Hours | | 16 |
| Semester Nine | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! ADED 42277 | TOPICS IN SECONDARY SCHOOL SCIENCE TEACHING | 3 |
| ! ADED 42292 | FIELD WORK PRACTICUM (ELR) | 3 |
| GEOG 41073 | CONSERVATION OF NATURAL RESOURCES | 3 |
| MATH 10041 or MATH 30011 | INTRODUCTORY STATISTICS (KMCR) or BASIC PROBABILITY AND STATISTICS | 3-4 |
| Credit Hours | | 12 |
| Semester Ten | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ADED 42392 | SECONDARY STUDENT TEACHING (ELR) | 9 |
| ! ADED 49525 | INQUIRY INTO PROFESSIONAL PRACTICE | 3 |
| Credit Hours | | 12 |
| Minimum Total Credit Hours: | | 145 |

Life Science Concentration

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

| Semester One | | | Credits |
|--|-----------------------|---|---------|
| ! | BSCI 10120 | BIOLOGICAL FOUNDATIONS (ELR) (KBS) (KLAB) | 4 |
| | MATH 11010 | ALGEBRA FOR CALCULUS (KMCR) | 3 |
| | PSYC 11762 | GENERAL PSYCHOLOGY (DIVD) (KSS) | 3 |
| | UC 10001 | FLASHES 101 | 1 |
| | Kent Core Requirement | | 3 |
| Credit Hours | | | 14 |
| Semester Two | | | |
| ! | BSCI 10110 | BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB) | 4 |
| ! | CULT 29535 | EDUCATION IN A DEMOCRATIC SOCIETY | 3 |
| | MATH 11022 | TRIGONOMETRY (KMCR) | 3 |
| | SOC 12050 | INTRODUCTION TO SOCIOLOGY (DIVD) (KSS) | 3 |
| | Kent Core Requirement | | 3 |
| Credit Hours | | | 16 |
| Semester Three | | | |
| ! | CHEM 10060 | GENERAL CHEMISTRY I (KBS) | 4 |
| ! | CHEM 10062 | GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB) | 1 |
| ! | MATH 12002 | ANALYTIC GEOMETRY AND CALCULUS I (KMCR) | 5 |
| | PHIL 11001 | INTRODUCTION TO PHILOSOPHY (DIVG) (KHUM) | 3 |
| | Kent Core Requirement | | 3 |
| Credit Hours | | | 16 |
| Semester Four | | | |
| | ADED 20000 | TOPICS IN SOCIAL JUSTICE IN TEACHING AND LEARNING | 3 |
| | BSCI 30156 | ELEMENTS OF GENETICS | 3 |
| ! | CHEM 10061 | GENERAL CHEMISTRY II (KBS) | 4 |
| ! | CHEM 10063 | GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB) | 1 |
| ! | EPSY 29525 | EDUCATIONAL PSYCHOLOGY | 3 |
| | SPED 23000 | INTRODUCTION TO EXCEPTIONALITIES (DIVD) | 3 |
| Credit Hours | | | 17 |
| Semester Five | | | |
| Requirement: minimum 2.750 overall GPA required by end of term and minimum 2.600 major GPA | | | |
| | BSCI 30140 | CELL BIOLOGY | 4 |
| | CHEM 20481 | BASIC ORGANIC CHEMISTRY I | 4 |
| | ESCI 11040 | HOW THE EARTH WORKS (KBS) | 3 |
| | ESCI 11041 | HOW THE EARTH WORKS LABORATORY (KBS) (KLAB) | 1 |
| | Kent Core Requirement | | 3 |
| Credit Hours | | | 15 |
| Semester Six | | | |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | | |
| | BSCI 30360 | GENERAL ECOLOGY | 4 |
| | CHEM 30284 | INTRODUCTORY BIOLOGICAL CHEMISTRY | 4 |
| | ESCI 11042 | EARTH AND LIFE THROUGH TIME (KBS) | 3 |
| | ESCI 11043 | EARTH AND LIFE THROUGH TIME LABORATORY (KBS) (KLAB) | 1 |
| | GEOG 41073 | CONSERVATION OF NATURAL RESOURCES | 3 |
| Credit Hours | | | 15 |

Semester Seven

| | | |
|--|------------|---|
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! | ADED 32142 | PRINCIPLES OF TEACHING ADOLESCENTS (WIC) |
| | CI 47330 | READING AND WRITING IN ADOLESCENCE/ADULTHOOD |
| | ETEC 39525 | EDUCATIONAL TECHNOLOGY |
| | PHY 13001 | GENERAL COLLEGE PHYSICS I (KBS) |
| | PHY 13021 | GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB) |
| Credit Hours | | 14 |

Semester Eight

| | | |
|--|------------|--|
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! | ADED 32277 | TEACHING SCIENCE IN SECONDARY SCHOOLS |
| | BSCI 40163 | EVOLUTION |
| | ESCI 21062 | ENVIRONMENTAL EARTH SCIENCE (KBS) |
| | PHY 13002 | GENERAL COLLEGE PHYSICS II (KBS) |
| | PHY 13022 | GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB) |
| Credit Hours | | 14 |

Semester Nine

| | | |
|--|------------|---|
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! | ADED 42277 | TOPICS IN SECONDARY SCHOOL SCIENCE TEACHING |
| ! | ADED 42292 | FIELD WORK PRACTICUM (ELR) |
| | MATH 10041 | INTRODUCTORY STATISTICS (KMCR) |
| | or | or BASIC PROBABILITY AND STATISTICS |
| | MATH 30011 | |
| | PHY 21430 | FRONTIERS IN ASTRONOMY (KBS) |
| Credit Hours | | 12 |

Semester Ten

| | | |
|--|------------|------------------------------------|
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| | ADED 42392 | SECONDARY STUDENT TEACHING (ELR) |
| ! | ADED 49525 | INQUIRY INTO PROFESSIONAL PRACTICE |
| Credit Hours | | 12 |
| Minimum Total Credit Hours: | | 145 |

Physics Concentration

This roadmap is a recommended semester-by-semester plan of study for this major. However, courses designated as critical (!) must be completed in the semester listed to ensure a timely graduation.

| Semester One | | Credits |
|--|---|---------|
| CHEM 10060 | GENERAL CHEMISTRY I (KBS) | 4 |
| CHEM 10062 | GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB) | 1 |
| MATH 11010 | ALGEBRA FOR CALCULUS (KMCR) | 3 |
| PSYC 11762 | GENERAL PSYCHOLOGY (DIVD) (KSS) | 3 |
| UC 10001 | FLASHES 101 | 1 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 15 |
| Semester Two | | Credits |
| CHEM 10061 | GENERAL CHEMISTRY II (KBS) | 4 |
| CHEM 10063 | GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB) | 1 |
| ! CULT 29535 | EDUCATION IN A DEMOCRATIC SOCIETY | 3 |
| MATH 11022 | TRIGONOMETRY (KMCR) | 3 |
| SOC 12050 | INTRODUCTION TO SOCIOLOGY (DIVD) (KSS) | 3 |
| Credit Hours | | 14 |
| Semester Three | | Credits |
| CHEM 20481 | BASIC ORGANIC CHEMISTRY I | 4 |
| MATH 12002 | ANALYTIC GEOMETRY AND CALCULUS I (KMCR) | 5 |
| ! PHY 23101 | GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB) | 5 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 17 |
| Semester Four | | Credits |
| BSCI 10110 | BIOLOGICAL DIVERSITY (ELR) (KBS) (KLAB) | 4 |
| ! MATH 12003 | ANALYTIC GEOMETRY AND CALCULUS II | 5 |
| ! PHY 23102 | GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB) | 5 |
| Credit Hours | | 14 |
| Semester Five | | Credits |
| Requirement: minimum 2.750 overall GPA required by end of term and minimum 2.600 major GPA | | |
| EPSY 29525 | EDUCATIONAL PSYCHOLOGY | 3 |
| ESCI 11040 | HOW THE EARTH WORKS (KBS) | 3 |
| ESCI 11041 | HOW THE EARTH WORKS LABORATORY (KBS) (KLAB) | 1 |
| PHIL 11001 | INTRODUCTION TO PHILOSOPHY (DIVG) (KHUM) | 3 |
| PHY 21430 | FRONTIERS IN ASTRONOMY (KBS) | 3 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 16 |
| Semester Six | | Credits |
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ADED 20000 | TOPICS IN SOCIAL JUSTICE IN TEACHING AND LEARNING | 3 |
| ESCI 11042 | EARTH AND LIFE THROUGH TIME (KBS) | 3 |
| ESCI 11043 | EARTH AND LIFE THROUGH TIME LABORATORY (KBS) (KLAB) | 1 |
| GEOG 41073 | CONSERVATION OF NATURAL RESOURCES | 3 |
| PHY 36001 | INTRODUCTORY MODERN PHYSICS | 3 |
| SPED 23000 | INTRODUCTION TO EXCEPTIONALITIES (DIVD) | 3 |
| Kent Core Requirement | | 3 |
| Credit Hours | | 19 |

Semester Seven

| | | |
|--|--|----|
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! ADED 32142 | PRINCIPLES OF TEACHING ADOLESCENTS (WIC) | 3 |
| BSCI 10120 | BIOLOGICAL FOUNDATIONS (ELR) (KBS) (KLAB) | 4 |
| CI 47330 | READING AND WRITING IN ADOLESCENCE/ADULTHOOD | 3 |
| ETEC 39525 | EDUCATIONAL TECHNOLOGY | 3 |
| Credit Hours | | 13 |

Semester Eight

| | | |
|--|---|-----|
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! ADED 32277 | TEACHING SCIENCE IN SECONDARY SCHOOLS | 3 |
| BSCI 30140 | CELL BIOLOGY | 4 |
| BSCI 30156 | ELEMENTS OF GENETICS | 3 |
| MATH 10041 or MATH 30011 | INTRODUCTORY STATISTICS (KMCR) or BASIC PROBABILITY AND STATISTICS | 3-4 |
| PHY 30020 | INTERMEDIATE PHYSICS LABORATORY (WIC) | 2 |
| Credit Hours | | 15 |

Semester Nine

| | | |
|--|--|-----|
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ! ADED 42277 | TOPICS IN SECONDARY SCHOOL SCIENCE TEACHING | 3 |
| ! ADED 42292 | FIELD WORK PRACTICUM (ELR) | 3 |
| CHEM 40567 | PHYSICAL CHEMISTRY FOR LIFE SCIENCES | 4 |
| PHY 32511 or PHY 36002 | ELECTRONICS or APPLICATIONS OF MODERN PHYSICS | 3-4 |
| Credit Hours | | 13 |

Semester Ten

| | | |
|--|------------------------------------|-----|
| Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA | | |
| ADED 42392 | SECONDARY STUDENT TEACHING (ELR) | 9 |
| ! ADED 49525 | INQUIRY INTO PROFESSIONAL PRACTICE | 3 |
| Credit Hours | | 12 |
| Minimum Total Credit Hours: | | 148 |

University Requirements

All students in a bachelor's degree program at Kent State University must complete the following university requirements for graduation.

NOTE: University requirements may be fulfilled in this program by specific course requirements. Please see Program Requirements for details.

| | |
|--|--------------------|
| Flashes 101 (UC 10001) | 1 credit hour |
| Course is not required for students with 30+ transfer credits (excluding College Credit Plus) or age 21+ at time of admission. | |
| Diversity Domestic/Global (DIVD/DIVG) | 2 courses |
| Students must successfully complete one domestic and one global course, of which one must be from the Kent Core. | |
| Experiential Learning Requirement (ELR) | varies |
| Students must successfully complete one course or approved experience. | |
| Kent Core (see table below) | 36-37 credit hours |
| Writing-Intensive Course (WIC) | 1 course |

Students must earn a minimum C grade in the course.

| | |
|---|------------------|
| Upper-Division Requirement | 39 credit hours |
| Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate. | |
| Total Credit Hour Requirement | 120 credit hours |

Kent Core Requirements

| | |
|---|--------------|
| Kent Core Composition (KCOMP) | 6 |
| Kent Core Mathematics and Critical Reasoning (KMCR) | 3 |
| Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each) | 9 |
| Kent Core Social Sciences (KSS) (must be from two disciplines) | 6 |
| Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory) | 6-7 |
| Kent Core Additional (KADL) | 6 |
| Total Credit Hours: | 36-37 |

Program Learning Outcomes

Graduates of this program will be able to:

1. Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how to engage all students in learning science.
2. Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure area.
3. Plan fair and equitable assessment strategies to analyze student learning and to evaluate if the science learning goals are met.

Full Description

The Bachelor of Science in Education degree in Integrated Science is a five-year degree that prepares students for licensure in all areas of science, grades 7-12. Students take a broad range of science-content courses in earth science, geography, biology, chemistry and physics, and choose one area in which to specialize. Students complete most of their content coursework during their first four years and then begin their methods coursework during the spring of their fourth year. During the final year of the program, students complete remaining content courses, science teaching methods courses and a year-long placement in a local school district, which concludes with 13 weeks of student teaching in the spring. Integrated Science students are encouraged to meet with their advisor early in their program as many courses must be sequenced carefully.

Students are required to complete Bureau of Criminal Investigation and Identification (BCII) and Federal Bureau of Investigation (FBI) background checks.

Professional Licensure Disclosure

This program is designed to prepare students to sit for applicable licensure or certification in Ohio. If you plan to pursue licensure or certification in a state other than Ohio, please review state educational requirements for licensure or certification and contact information for state licensing boards at Kent State's website for professional licensure disclosure.