INTEGRATED SCIENCE - B.S.E.

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

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

Fully Offered
• Kent Campus

Examples of Possible Careers*

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

*Note
Source of occupation titles and labor data is 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.

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 geology, 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.

Accreditation
National Council for Accreditation of Teacher Education

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.

English Language Proficiency Requirements for International Students: All international students must provide proof of English language proficiency (unless they meet specific exceptions) by earning a minimum 525 TOEFL score (71 on the Internet-based version), minimum 75 MELAB score, minimum 6.0 IELTS score, minimum 48 PTE score or minimum 100 DET score; or by completing the ESL level 112 Intensive Program. For more information on international admission, visit the Office of Global Education’s admission website.

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.

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.

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.

Students must successfully complete 39 upper-division (numbered 30000 to 49999) credit hours to graduate. Students in a B.A. and/or B.S. degree in the College of Arts and Sciences must complete 42 upper-division credit hours.

<table>
<thead>
<tr>
<th>Total Credit Hour Requirement</th>
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<tbody>
<tr>
<td>Some bachelor’s degrees require students to complete more than 120 credit hours.</td>
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Kent Core Requirements

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<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>BSCI 10110</td>
<td>BIOLOGICAL DIVERSITY (KBS) (KLAB)</td>
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<tr>
<td>BSCI 10120</td>
<td>BIOLOGICAL FOUNDATIONS (KBS) (KLAB)</td>
<td>4</td>
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<tr>
<td>BSCI 30140</td>
<td>CELL BIOLOGY</td>
<td>4</td>
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<tr>
<td>BSCI 30156</td>
<td>ELEMENTS OF GENETICS</td>
<td>3</td>
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<tr>
<td>CHEM 10060</td>
<td>GENERAL CHEMISTRY I (KBS)</td>
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</tr>
<tr>
<td>CHEM 10061</td>
<td>GENERAL CHEMISTRY II (KBS)</td>
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<td>CHEM 10062</td>
<td>GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB)</td>
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<td>CHEM 10063</td>
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<tr>
<td>CHEM 20481</td>
<td>BASIC ORGANIC CHEMISTRY I</td>
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<tr>
<td>GEOG 41073</td>
<td>CONSERVATION OF NATURAL RESOURCES</td>
<td>3</td>
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<tr>
<td>GEOL 11040</td>
<td>HOW THE EARTH WORKS (KBS)</td>
<td>3</td>
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<tr>
<td>GEOL 11041</td>
<td>HOW THE EARTH WORKS LABORATORY (KBS) (KLAB)</td>
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<tr>
<td>GEOL 11042</td>
<td>EARTH AND LIFE THROUGH TIME (KBS)</td>
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<tr>
<td>GEOL 11043</td>
<td>EARTH AND LIFE THROUGH TIME LABORATORY (KBS) (KLAB)</td>
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<tr>
<td>PHY 21430</td>
<td>FRONTIERS IN ASTRONOMY (KBS)</td>
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<tr>
<td>ADED 20000</td>
<td>TOPICS IN SOCIAL JUSTICE IN TEACHING AND LEARNING (min C grade)</td>
<td>3</td>
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<tr>
<td>ADED 32142</td>
<td>PRINCIPLES OF TEACHING ADOLESCENTS (WIC) (min C grade)</td>
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<tr>
<td>ADED 32277</td>
<td>TEACHING SCIENCE IN SECONDARY SCHOOLS (min C grade)</td>
<td>3</td>
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<tr>
<td>ADED 42277</td>
<td>TOPICS IN SECONDARY SCHOOL SCIENCE TEACHING (min C grade)</td>
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<tr>
<td>ADED 42292</td>
<td>FIELD WORK PRACTICUM (ELR) (min C grade)</td>
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<tr>
<td>ADED 42392</td>
<td>SECONDARY STUDENT TEACHING (ELR)</td>
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<tr>
<td>ADED 49525</td>
<td>INQUIRY INTO PROFESSIONAL PRACTICE (min C grade)</td>
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<tr>
<td>CI 47330</td>
<td>READING AND WRITING IN ADOLESCENCE/ADULTHOOD (min C grade)</td>
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| Program Requirements Major Requirements |
|-----------------------------------------|----------------|
| Code | Title | Credit Hours |
| BSCI 10110 | BIOLOGICAL DIVERSITY (KBS) (KLAB) | 4 |
| BSCI 10120 | BIOLOGICAL FOUNDATIONS (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 |
| GEOG 41073 | CONSERVATION OF NATURAL RESOURCES | 3 |
| GEOL 11040 | HOW THE EARTH WORKS (KBS) | 3 |
| GEOL 11041 | HOW THE EARTH WORKS LABORATORY (KBS) (KLAB) | 1 |
| GEOL 11042 | EARTH AND LIFE THROUGH TIME (KBS) | 3 |
| GEOL 11043 | EARTH AND LIFE THROUGH TIME LABORATORY (KBS) (KLAB) | 1 |
| PHY 21430 | FRONTIERS IN ASTRONOMY (KBS) | 3 |
| ADED 20000 | TOPICS IN SOCIAL JUSTICE IN TEACHING AND LEARNING (min C grade) | 3 |
| ADED 32142 | PRINCIPLES OF TEACHING ADOLESCENTS (WIC) (min C grade) | 3 |
| ADED 32277 | TEACHING SCIENCE IN SECONDARY SCHOOLS (min C grade) | 3 |
| ADED 42277 | TOPICS IN SECONDARY SCHOOL SCIENCE TEACHING (min C grade) | 3 |
| ADED 42292 | FIELD WORK PRACTICUM (ELR) (min C grade) | 1 |
| ADED 42392 | SECONDARY STUDENT TEACHING (ELR) | 9 |
| ADED 49525 | INQUIRY INTO PROFESSIONAL PRACTICE (min C grade) | 3 |
| CI 47330 | READING AND WRITING IN ADOLESCENCE/ADULTHOOD (min C grade) | 3 |
Earth Science Concentration Requirements

<table>
<thead>
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<tr>
<td>GEOL 31070</td>
<td>EDUCATION IN A DEMOCRATIC SOCIETY (min C grade)</td>
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<td>EPSY 29525</td>
<td>EDUCATIONAL PSYCHOLOGY (min C grade)</td>
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<td>ETEC 39525</td>
<td>EDUCATIONAL TECHNOLOGY (min C grade)</td>
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<tr>
<td>MATH 10041</td>
<td>INTRODUCTORY STATISTICS (KMCR)</td>
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<td>or MATH 30011</td>
<td>BASIC PROBABILITY AND STATISTICS</td>
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<tr>
<td>MATH 11010</td>
<td>ALGEBRA FOR CALCULUS (KMCR)</td>
<td>3</td>
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<tr>
<td>MATH 11022</td>
<td>TRIGONOMETRY (KMCR)</td>
<td>3</td>
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<tr>
<td>MATH 12002</td>
<td>ANALYTIC GEOMETRY AND CALCULUS I (KMCR)</td>
<td>5</td>
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<tr>
<td>PHIL 11001</td>
<td>INTRODUCTION TO PHILOSOPHY (DIVG) (KHUM)</td>
<td>3</td>
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<tr>
<td>PSYC 11762</td>
<td>GENERAL PSYCHOLOGY (DIVD) (KSS)</td>
<td>3</td>
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<tr>
<td>SOC 12050</td>
<td>INTRODUCTION TO SOCIOLOGY (DIVD) (KSS)</td>
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<tr>
<td>SPED 23000</td>
<td>INTRODUCTION TO EXCEPTIONALITIES (DIVD)</td>
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<td>DESTINATION KENT STATE: FIRST YEAR EXPERIENCE</td>
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<td>Kent Core Composition (min C grade)</td>
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<td>Kent Core Humanities and Fine Arts (minimum one from each)</td>
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Concentration Requirements

Choose from the following:

Chemistry
Earth Science
Life Science
Physics

Minimum Total Credit Hours: 144-148

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

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tr>
<td>CHEM 30105</td>
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<td>CHEM 30284</td>
<td>INTRODUCTORY BIOLOGICAL CHEMISTRY</td>
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<tr>
<td>CHEM 30301</td>
<td>INORGANIC CHEMISTRY I</td>
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<td>CHEM 30475</td>
<td>ORGANIC CHEMISTRY LABORATORY I (ELR)</td>
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<tr>
<td>CHEM 40567</td>
<td>PHYSICAL CHEMISTRY FOR LIFE SCIENCES</td>
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<tr>
<td>PHY 13001</td>
<td>GENERAL COLLEGE PHYSICS I (KBS)</td>
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<td>PHY 13002</td>
<td>GENERAL COLLEGE PHYSICS II (KBS)</td>
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<td>PHY 13021</td>
<td>GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)</td>
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<td>PHY 13022</td>
<td>GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB)</td>
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Minimum Total Credit Hours: 24

Life Science Concentration Requirements

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<tr>
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<tr>
<td>BSCI 30360</td>
<td>GENERAL ECOLOGY</td>
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<td>BSCI 40163</td>
<td>EVOLUTION</td>
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<tr>
<td>CHEM 30284</td>
<td>INTRODUCTORY BIOLOGICAL CHEMISTRY</td>
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<tr>
<td>GEOL 21062</td>
<td>ENVIRONMENTAL EARTH SCIENCE (KBS)</td>
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<td>PHY 13001</td>
<td>GENERAL COLLEGE PHYSICS I (KBS)</td>
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<td>PHY 13002</td>
<td>GENERAL COLLEGE PHYSICS II (KBS)</td>
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<td>PHY 13021</td>
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<td>PHY 13022</td>
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Minimum Total Credit Hours: 24

Physics Concentration Requirements

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<tr>
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<td>PHYSICAL CHEMISTRY FOR LIFE SCIENCES</td>
<td>4</td>
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<td>MATH 12003</td>
<td>ANALYTIC GEOMETRY AND CALCULUS II</td>
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<td>PHY 23101</td>
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<td>PHY 23102</td>
<td>GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)</td>
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<td>PHY 30020</td>
<td>INTERMEDIATE PHYSICS LABORATORY (WIC)</td>
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<td>PHY 32511</td>
<td>ELECTRONICS</td>
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<td>or PHY 36002</td>
<td>APPLICATIONS OF MODERN PHYSICS</td>
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<td>PHY 36001</td>
<td>INTRODUCTORY MODERN PHYSICS</td>
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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, GPA and performance in English and
communication studies 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

<table>
<thead>
<tr>
<th>Minimum Major GPA</th>
<th>Minimum Overall GPA</th>
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<tr>
<td>2.600</td>
<td>2.750</td>
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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
- Earth Science
- Life Science
- Physics

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.

Roadmaps

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<tr>
<th>Semester One</th>
<th>Credits</th>
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<tr>
<td>BSCI 10120</td>
<td>BIOLOGICAL FOUNDATIONS (KBS) (KLAB) 4</td>
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<td>MATH 11010</td>
<td>ALGEBRA FOR CALCULUS (KMCR) 3</td>
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<td>UC 10097</td>
<td>DESTINATION KENT STATE: FIRST YEAR EXPERIENCE 1</td>
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<td>! CULT 29535</td>
<td>EDUCATION IN A DEMOCRATIC SOCIETY 3</td>
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<td>TRIGONOMETRY (KMC) 3</td>
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<td>ADED 20000</td>
<td>TOPICS IN SOCIAL JUSTICE IN TEACHING AND LEARNING 3</td>
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<td>! BSCI 10060</td>
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<td>! CHEM 10062</td>
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<td>! CHEM 10061</td>
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<td>! CHEM 10063</td>
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<td>! EPSY 29525</td>
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### Semester Six

Requirement: minimum 2.750 overall GPA required by end of term and minimum 2.600 major GPA

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<td>FRONTIERS IN ASTRONOMY (KBS)</td>
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<tr>
<td>SPED 23000</td>
<td>INTRODUCTION TO EXCEPTIONALITIES (DIVD)</td>
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Credit Hours: 16

### Semester Seven

Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA

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Credit Hours: 14

### Semester Eight

Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA

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<td>READING AND WRITING IN ADOLESCENCE/ADULTHOOD</td>
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Credit Hours: 14

### Semester Nine

Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA

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<tr>
<td>! ADED 42277</td>
<td>TOPICS IN SECONDARY SCHOOL SCIENCE TEACHING</td>
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<td>! ADED 42292</td>
<td>FIELD WORK PRACTICUM (ELR)</td>
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<td>CHEM 40567</td>
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<td>or MATH 30011</td>
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Credit Hours: 13

### Semester Ten

Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA

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Credit Hours: 12

Minimum Total Credit Hours: 145
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.

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<td>ALGEBRA FOR CALCULUS (KMCR) 3</td>
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<td>GENERAL PSYCHOLOGY (DIVD) (KSS) 3</td>
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<td>ALL ABOUT THE OCEANS (KBS) 3</td>
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**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.

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<td>! ADED 49525 INQUIRY INTO PROFESSIONAL PRACTICE</td>
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<tr>
<td><strong>Credit Hours</strong></td>
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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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM 10060</td>
<td>GENERAL CHEMISTRY I (KBS)</td>
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<td>MATH 11010</td>
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<tr>
<td>PSYC 11762</td>
<td>GENERAL PSYCHOLOGY (DIVD) (KSS)</td>
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<td>UC 10097</td>
<td>DESTINATION KENT STATE: FIRST YEAR</td>
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<tr>
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<td>CHEM 10063</td>
<td>GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)</td>
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<td>! CULT 29535</td>
<td>EDUCATION IN A DEMOCRATIC SOCIETY</td>
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<td>MATH 11022</td>
<td>TRIGONOMETRY (KMCR)</td>
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<td>SOC 12050</td>
<td>INTRODUCTION TO SOCIOLOGY (DIVD) (KSS)</td>
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### Semester Three

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<td>MATH 12002</td>
<td>ANALYTIC GEOMETRY AND CALCULUS I (KMCR)</td>
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<td>! PHY 23101</td>
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### Semester Four

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<tr>
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<td>BIOLOGICAL DIVERSITY (KBS)</td>
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<tr>
<td>! MATH 12003</td>
<td>ANALYTIC GEOMETRY AND CALCULUS II</td>
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<tr>
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### Semester Five

Requirement: minimum 2.750 overall GPA required by end of term and minimum 2.600 major GPA

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<td>EDUCATIONAL PSYCHOLOGY</td>
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<tr>
<td>GEOL 11040</td>
<td>HOW THE EARTH WORKS (KBS)</td>
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<td>GEOL 11041</td>
<td>HOW THE EARTH WORKS LABORATORY (KBS) (KLAB)</td>
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<td>PHIL 11001</td>
<td>INTRODUCTION TO PHILOSOPHY (DIVG) (KHUM)</td>
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<tr>
<td>PHY 21430</td>
<td>FRONTIERS IN ASTRONOMY (KBS)</td>
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### Semester Six

Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA

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<thead>
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<tbody>
<tr>
<td>GEOG 41073</td>
<td>CONSERVATION OF NATURAL RESOURCES</td>
<td>3</td>
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<td>GEOL 11042</td>
<td>EARTH AND LIFE THROUGH TIME (KBS)</td>
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<td>GEOL 11043</td>
<td>EARTH AND LIFE THROUGH TIME LABORATORY (KBS) (KLAB)</td>
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<tr>
<td>! PHY 30020</td>
<td>INTERMEDIATE PHYSICS LABORATORY (WIC)</td>
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<td>SPED 23000</td>
<td>INTRODUCTION TO EXCEPTIONALITIES (DIVD)</td>
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### Semester Seven

Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA

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<thead>
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<tr>
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<td>TOPICS IN SOCIAL JUSTICE IN TEACHING AND LEARNING</td>
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<tr>
<td>! ADED 32142</td>
<td>PRINCIPLES OF TEACHING ADOLESCENTS (WIC)</td>
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<tr>
<td>BSCI 10120</td>
<td>BIOLOGICAL FOUNDATIONS (KBS) (KLAB)</td>
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<td>CI 47330</td>
<td>READING AND WRITING IN ADOLESCENCE/ADULTHOOD</td>
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<td>ETEC 39525</td>
<td>EDUCATIONAL TECHNOLOGY</td>
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### Semester Eight

Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA

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<tr>
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<td>! ADED 32277</td>
<td>TEACHING SCIENCE IN SECONDARY SCHOOLS</td>
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<tr>
<td>BSCI 30140</td>
<td>CELL BIOLOGY</td>
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<td>BSCI 30156</td>
<td>ELEMENTS OF GENETICS</td>
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<td>MATH 10041</td>
<td>INTRODUCTORY STATISTICS (KMCR)</td>
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<tr>
<td>or MATH 30011</td>
<td>BASIC PROBABILITY AND STATISTICS</td>
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<td>PHY 36001</td>
<td>INTRODUCTORY MODERN PHYSICS</td>
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### Semester Nine

Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>! ADED 42277</td>
<td>TOPICS IN SECONDARY SCHOOL SCIENCE TEACHING</td>
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<tr>
<td>! ADED 42292</td>
<td>FIELD WORK PRACTICUM (ELR)</td>
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<tr>
<td>CHEM 40567</td>
<td>PHYSICAL CHEMISTRY FOR LIFE SCIENCES</td>
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<td>PHY 32511</td>
<td>ELECTRONICS</td>
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<tr>
<td>or PHY 36002</td>
<td>APPLICATIONS OF MODERN PHYSICS</td>
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### Semester Ten

Requirement: minimum 2.750 overall GPA and minimum 2.600 major GPA

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<td>SECONDARY STUDENT TEACHING (ELR)</td>
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<td>! ADED 49525</td>
<td>INQUIRY INTO PROFESSIONAL PRACTICE</td>
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<td><strong>Credit Hours</strong></td>
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Minimum Total Credit Hours: 148