BOTANY - B.S.

College of Arts and Sciences
Department of Biological Sciences
256 Cunningham Hall
Kent Campus
330-672-3613
kentbiology@kent.edu
www.kent.edu/biology

Description

The Bachelor of Science degree in Botany focuses on the scientific study of plants, and the understanding of how plants provide aesthetic beauty, as well as materials for the basic needs, including food, shelter and oxygen. Botanical research has diverse applications in modern horticulture, agriculture, soil science and forestry, in addition to pharmacology and biotechnology.

Many students continue their education in graduate or professional programs. Those opting to enter directly into the workforce find jobs in fields related to the economic importance of plants, including agriculturally-based and related professions, environmental consulting or in federal, state or local agencies. The Department of Biological Sciences offers several mechanisms to help students prepare for their future careers.

Fully Offered At:
• Kent Campus

Admission Requirements

The university affirmatively strives to provide educational opportunities and access to students with varied backgrounds, those with special talents and adult students who graduated from high school three or more years ago.

Freshman Students on the Kent Campus: The freshman admission policy on the Kent Campus is selective. Admission decisions are based upon the following: cumulative grade point average, ACT and/or SAT scores, strength of high school college preparatory curriculum and grade trends. The Admissions Office at the Kent Campus may defer the admission of students who do not meet admissions criteria but who demonstrate areas of promise for successful college study. Deferred applicants may begin their college coursework at one of seven regional campuses of Kent State University. For more information on admissions, including additional requirements for some academic programs, visit the admissions website for new freshmen.

Freshman Students on the Regional Campuses: Kent State campuses at Ashtabula, East Liverpool, Geauga, Salem, Stark, Trumbull and Tuscarawas, as well as the Regional Academic Center in Twinsburg, have open enrollment admission for students who hold a high school diploma, GED or equivalent.

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 or minimum 48 PTE 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.

Transfer, Transitioning and Former Students: For more information about admission criteria for transfer, transitioning and former students, please visit the admissions website.

Program Learning Outcomes

Graduates of this program will be able to:

1. Understand fundamental biological principles.
2. Acquire fundamental skills necessary for laboratory and field investigations.
3. Conduct proper experimental design, analyze biological data and communicate research results.
4. Know and appreciate the role that biology plays in societal issues, such as those related to the environment, biodiversity, ethics, human health and disease.

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.

<table>
<thead>
<tr>
<th>Requirement Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kent Core (see table below)</td>
<td>36-37</td>
</tr>
<tr>
<td>Writing-intensive Course (WIC)</td>
<td>1 course</td>
</tr>
<tr>
<td>Experiential Learning Requirement (ELR)</td>
<td>varies</td>
</tr>
<tr>
<td>Diversity Domestic/Global (DIVD/DIVG)</td>
<td>2 courses</td>
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<tr>
<td>Destination Kent State: First Year Experience</td>
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<tr>
<td>Upper-Division Requirement</td>
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<td>Total Credit Hour Requirement</td>
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Some bachelor’s degrees require students to complete more than 120 credit hours.

Kent Core Requirements

<table>
<thead>
<tr>
<th>Requirement Description</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Kent Core Composition (KCMP)</td>
<td>6</td>
</tr>
<tr>
<td>Kent Core Mathematics and Critical Reasoning (KMCR)</td>
<td>3</td>
</tr>
<tr>
<td>Kent Core Humanities and Fine Arts (KHUM/KFA) (min one course each)</td>
<td>9</td>
</tr>
<tr>
<td>Kent Core Social Sciences (KSS) (must be from two disciplines)</td>
<td>6</td>
</tr>
<tr>
<td>Kent Core Basic Sciences (KBS/KLAB) (must include one laboratory)</td>
<td>6-7</td>
</tr>
<tr>
<td>Kent Core Additional (KADL)</td>
<td>6</td>
</tr>
<tr>
<td>Total Credit Hours:</td>
<td>36-37</td>
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</table>
Program Requirements

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BSCI 10110</td>
<td>BIOLOGICAL DIVERSITY (KBS) (KLAB)</td>
<td>4</td>
</tr>
<tr>
<td>BSCI 10120</td>
<td>BIOLOGICAL FOUNDATIONS (KBS) (KLAB)</td>
<td>4</td>
</tr>
<tr>
<td>BSCI 30156</td>
<td>ELEMENTS OF GENETICS</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 40163</td>
<td>EVOLUTION</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 40600</td>
<td>WRITING IN THE BIOLOGICAL SCIENCES (WIC)</td>
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<tr>
<td>CHEM 10060</td>
<td>GENERAL CHEMISTRY I (KBS)</td>
<td>4</td>
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<tr>
<td>CHEM 10061</td>
<td>GENERAL CHEMISTRY II (KBS)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 10062</td>
<td>GENERAL CHEMISTRY I LABORATORY (KBS)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 10063</td>
<td>GENERAL CHEMISTRY II LABORATORY (KBS)</td>
<td>1</td>
</tr>
<tr>
<td>CHEM 20481</td>
<td>BASIC ORGANIC CHEMISTRY I (KLAB)</td>
<td>3-4</td>
</tr>
<tr>
<td>or CHEM 30481</td>
<td>ORGANIC CHEMISTRY I</td>
<td></td>
</tr>
<tr>
<td>CHEM 20482</td>
<td>BASIC ORGANIC CHEMISTRY II 2</td>
<td>1-3</td>
</tr>
<tr>
<td>or CHEM 30475</td>
<td>ORGANIC CHEMISTRY LABORATORY I (ELR)</td>
<td></td>
</tr>
<tr>
<td>or CHEM 30482</td>
<td>ORGANIC CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>MATH 12002</td>
<td>ANALYTIC GEOMETRY AND CALCULUS I (KMCR)</td>
<td>5</td>
</tr>
<tr>
<td>MATH 12003</td>
<td>ANALYTIC GEOMETRY AND CALCULUS II</td>
<td>3-5</td>
</tr>
<tr>
<td>or MATH 30011</td>
<td>BASIC PROBABILITY AND STATISTICS</td>
<td></td>
</tr>
<tr>
<td>Botany Core Electives, choose from the following:</td>
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</tr>
<tr>
<td>BSCI 30267</td>
<td>PLANT PHYSIOLOGY</td>
<td></td>
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<tr>
<td>BSCI 30270</td>
<td>GENERAL PLANT BIOLOGY</td>
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<tr>
<td>BSCI 30271</td>
<td>GENERAL PLANT BIOLOGY LABORATORY</td>
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<tr>
<td>BSCI 30274</td>
<td>FORESTRY</td>
<td></td>
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<tr>
<td>BSCI 30275</td>
<td>LOCAL FLORA (ELR)</td>
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<tr>
<td>BSCI 30277</td>
<td>ECONOMIC BOTANY</td>
<td></td>
</tr>
<tr>
<td>BSCI 40162</td>
<td>SOIL BIOLOGY</td>
<td></td>
</tr>
<tr>
<td>BSCI 40272</td>
<td>PLANT ANATOMY</td>
<td></td>
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<tr>
<td>Biology, Chemistry, Physics Electives, choose from the following:</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>CHEM 20482</td>
<td>BASIC ORGANIC CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>or CHEM 30482</td>
<td>ORGANIC CHEMISTRY II</td>
<td></td>
</tr>
<tr>
<td>CHEM 30475</td>
<td>ORGANIC CHEMISTRY LABORATORY I (ELR)</td>
<td></td>
</tr>
<tr>
<td>CHEM 30476</td>
<td>ORGANIC CHEMISTRY LABORATORY II</td>
<td></td>
</tr>
<tr>
<td>PHY 13001</td>
<td>GENERAL COLLEGE PHYSICS I (KBS)</td>
<td></td>
</tr>
<tr>
<td>&amp; PHY 13021</td>
<td>and GENERAL COLLEGE PHYSICS LABORATORY I (KBS) (KLAB)</td>
<td></td>
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<tr>
<td>or PHY 23101</td>
<td>GENERAL UNIVERSITY PHYSICS I (KBS) (KLAB)</td>
<td></td>
</tr>
<tr>
<td>PHY 13002</td>
<td>GENERAL COLLEGE PHYSICS II (KBS)</td>
<td></td>
</tr>
<tr>
<td>&amp; PHY 13022</td>
<td>and GENERAL COLLEGE PHYSICS LABORATORY II (KBS) (KLAB)</td>
<td></td>
</tr>
<tr>
<td>or PHY 23102</td>
<td>GENERAL UNIVERSITY PHYSICS II (KBS) (KLAB)</td>
<td></td>
</tr>
<tr>
<td>Additional Requirements (courses do not count in major GPA)</td>
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<tr>
<td>UC 10097</td>
<td>DESTINATION KENT STATE: FIRST YEAR EXPERIENCE</td>
<td>1</td>
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<tr>
<td>Foreign Language (see Foreign Language College Requirement below)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Kent Core Composition</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Kent Core Humanities and Fine Arts (minimum one course from each)</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Kent Core Social Sciences (must be from two disciplines)</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

General Electives (total credit hours depends on earning 120 credit hours, including 42 upper-division credit hours)

Minimum Total Credit Hours: 120

1. A minimum C grade must be earned to fulfill the writing-intensive requirement.
2. CHEM 20482 may be substituted with CHEM 30284 with faculty advisor approval.
3. Students should select their electives in consultation with an advisor. To fulfill this elective list, students must select a minimum of one from the following courses: BSCI 30156, BSCI 40191, BSCI 40192, BSCI 40196, BSCI 40199. However, they may only select a maximum of 6 credit hours of any combination of these courses (with no more than 4 credit hours S/U graded). Enrollment in these course must be determined with a faculty advisor.

Graduation Requirements

<table>
<thead>
<tr>
<th>Minimum Major GPA</th>
<th>Minimum Overall GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.000</td>
<td>2.000</td>
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</tbody>
</table>

Foreign Language College Requirement

1. Students pursuing the Bachelor of Science degree in the College of Arts and Sciences must complete 8 credit hours of foreign language.
2. Minimum Elementary I and II of the same language

All students with prior foreign language experience should take the foreign language placement test to determine the appropriate level at which to start. Some students may begin their university foreign language experience beyond the Elementary I level and will complete the requirement with fewer credit hours and fewer courses. This may be accomplished by: (1) passing a course beyond the Elementary I through Intermediate II level or (2) receiving credit through Credit by Exam (CBE), the College Level Examination Program (CLEP), the Advanced Placement (AP) exam or credit through the International Baccalaureate (IB) program; or (3) being designated a "native speaker" of a non-English language (consult with the College of Arts and Sciences Advising Office for additional Information). When students complete the requirement with fewer than 8 credit hours and two courses, they will complete the remaining hours with general electives.

The following Biological Sciences (BSCI) courses may NOT be used in the elective category for majors or minors in the Department of Biological Sciences:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSCI 10001</td>
<td>HUMAN BIOLOGY (KBS)</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 10002</td>
<td>LIFE ON PLANET EARTH (KBS)</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 10003</td>
<td>LABORATORY EXPERIENCE IN BIOLOGY (KBS) (KLAB)</td>
<td>1</td>
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<tr>
<td>BSCI 10005</td>
<td>ANATOMY FOR VETERINARY TECHNICIANS</td>
<td>5</td>
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<tr>
<td>BSCI 11010</td>
<td>FOUNDATIONAL ANATOMY AND PHYSIOLOGY I (KBS) (KLAB)</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 11020</td>
<td>FOUNDATIONAL ANATOMY AND PHYSIOLOGY II (KBS) (KLAB)</td>
<td>3</td>
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<tr>
<td>BSCI 16001</td>
<td>HORTICULTURAL BOTANY</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 20019</td>
<td>BIOLOGICAL STRUCTURE AND FUNCTION</td>
<td>4</td>
</tr>
<tr>
<td>BSCI 20021</td>
<td>BASIC MICROBIOLOGY</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
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<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
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<tr>
<td>BSCI 20022</td>
<td>BASIC MICROBIOLOGY LABORATORY</td>
<td>1</td>
</tr>
<tr>
<td>BSCI 21010</td>
<td>ANATOMY AND PHYSIOLOGY I (KBS) (KLAB)</td>
<td>4</td>
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<tr>
<td>BSCI 21020</td>
<td>ANATOMY AND PHYSIOLOGY II</td>
<td>4</td>
</tr>
<tr>
<td>BSCI 26002</td>
<td>ECOLOGICAL PRINCIPLES OF PEST MANAGEMENT</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 26003</td>
<td>PLANT IDENTIFICATION AND SELECTION I</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 26004</td>
<td>PLANT IDENTIFICATION AND SELECTION II</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 30050</td>
<td>HUMAN GENETICS</td>
<td>3</td>
</tr>
<tr>
<td>BSCI 40020</td>
<td>BIOLOGY OF AGING</td>
<td>3</td>
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Roadmap

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.

<table>
<thead>
<tr>
<th>Semester One</th>
<th>Credits</th>
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<tbody>
<tr>
<td>1. BSCI 10110 BIOLOGICAL DIVERSITY (KBS) (KLAB)</td>
<td>4</td>
</tr>
<tr>
<td>1. CHEM 10060 GENERAL CHEMISTRY I (KBS)</td>
<td>4</td>
</tr>
<tr>
<td>1. CHEM 10062 GENERAL CHEMISTRY I LABORATORY (KBS) (KLAB)</td>
<td>1</td>
</tr>
<tr>
<td>UC 10097 DESTINATION KENT STATE: FIRST YEAR EXPERIENCE</td>
<td>1</td>
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<tr>
<td>Kent Core Requirement</td>
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<tr>
<td>Kent Core Requirement</td>
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<tr>
<td>Credit Hours</td>
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<thead>
<tr>
<th>Semester Two</th>
<th>Credits</th>
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<tbody>
<tr>
<td>1. BSCI 10120 BIOLOGICAL FOUNDATIONS (KBS) (KLAB)</td>
<td>4</td>
</tr>
<tr>
<td>1. CHEM 10061 GENERAL CHEMISTRY II (KBS)</td>
<td>4</td>
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<tr>
<td>1. CHEM 10063 GENERAL CHEMISTRY II LABORATORY (KBS) (KLAB)</td>
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<tr>
<td>Kent Core Requirement</td>
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<th>Semester Three</th>
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<tbody>
<tr>
<td>1. CHEM 20481 BASIC ORGANIC CHEMISTRY I or ORGANIC CHEMISTRY I</td>
<td>3-4</td>
</tr>
<tr>
<td>CHEM 20482 BASIC ORGANIC CHEMISTRY II or ORGANIC CHEMISTRY LABORATORY I (ELR) or ORGANIC CHEMISTRY II</td>
<td>0-3</td>
</tr>
<tr>
<td>Botany Core Elective</td>
<td>4</td>
</tr>
<tr>
<td>Kent Core Requirement</td>
<td>3</td>
</tr>
<tr>
<td>Kent Core Requirement</td>
<td>3</td>
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<tr>
<td>Kent Core Requirement</td>
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<table>
<thead>
<tr>
<th>Semester Four</th>
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<tr>
<td>1. BSCI 30156 ELEMENTS OF GENETICS</td>
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<tr>
<td>CHEM 20482 BASIC ORGANIC CHEMISTRY II or ORGANIC CHEMISTRY LABORATORY I (ELR) or ORGANIC CHEMISTRY II</td>
<td>0-3</td>
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<tr>
<td>Botany Core Elective</td>
<td>4</td>
</tr>
<tr>
<td>Biology, Chemistry, Physics Electives</td>
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<tr>
<td>General Elective</td>
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<tr>
<td>Credit Hours</td>
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<table>
<thead>
<tr>
<th>Semester Five</th>
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<tbody>
<tr>
<td>MATH 12002 ANALYTIC GEOMETRY AND CALCULUS I (KMCR)</td>
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<tr>
<td>Botany Core Elective</td>
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</tr>
<tr>
<td>Biology, Chemistry, Physics Electives</td>
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</tr>
<tr>
<td>Foreign Language</td>
<td>4</td>
</tr>
<tr>
<td>Credit Hours</td>
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<table>
<thead>
<tr>
<th>Semester Six</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MATH 12003 or MATH 30011 ANALYTIC GEOMETRY AND CALCULUS II or BASIC PROBABILITY AND STATISTICS</td>
<td>3-5</td>
</tr>
<tr>
<td>Biology, Chemistry, Physics Electives</td>
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</tr>
<tr>
<td>General Elective</td>
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<tr>
<td>Credit Hours</td>
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Minimum Total Credit Hours: 120