Exercise Science, BS

Learning Outcomes

Students will be able to:

• apply principles of biomechanics and musculoskeletal anatomy to better understand movement, exercise, and injury;
• apply understanding of psychological benefits and determinants of physical activity behavior to facilitate behavior change;
• apply understanding of the effects of acute exercise and training on physiological systems;
• design population-specific aerobic, strength, balance, and flexibility exercise programs for health and performance outcomes;
• measure health and fitness outcomes to inform and evaluate tailored exercise programs; and
• apply evidence-based nutrition recommendations to support and enhance sport, performance, and exercise training outcomes.

Requirements

The Bachelor of Science with a major in exercise science requires a minimum of 120 s.h., including at least 48-50 s.h. of work for the major. A minimum of 16 s.h. in the major must be earned at the University of Iowa. Students must maintain a grade-point average of at least 2.00 in all courses for the major and in all UI courses for the major. They also must complete the College of Liberal Arts and Sciences GE CLAS Core.

The BS in exercise science is intended for students seeking careers as professionals in fitness and in strength and conditioning. The major provides focused study in physical fitness, physical activity, sport nutrition, and sport conditioning as they pertain to health and performance outcomes. The curriculum has been approved by the American College of Sports Medicine (ACSM) as meeting the academic preparation for certification as an ACSM-certified exercise physiologist and ACSM-certified personal trainer. It also prepares students for certification by the National Strength and Conditioning Association as a certified strength and conditioning specialist and certified special population specialist. The strong physiological science-based curriculum can serve as preparation for professional or graduate study in rehabilitation sciences, performance sciences, or medical fields.

Students who earn the major in exercise science may not earn a major in human physiology, health promotion, or health studies.

Students who earn the major in exercise science may not earn a minor in lifestyle medicine but may earn a minor in human physiology.

The BS with a major in exercise science requires the following coursework.

Exercise Science Core Courses

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHP:2350</td>
<td>Biomechanics of Sport and Physical Activity</td>
<td>3</td>
</tr>
<tr>
<td>HHP:3045</td>
<td>Physical Activity Psychology</td>
<td>3</td>
</tr>
<tr>
<td>HHP:3400</td>
<td>Applied Exercise Physiology</td>
<td>3</td>
</tr>
</tbody>
</table>

Science and Math Foundation Courses

Students complete three foundation courses (minimum of 10 s.h.): one each in chemistry, biology, and mathematics or statistics. Note that courses may have required prerequisites.

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>CHEM:1080</td>
<td>General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM:1120</td>
<td>Principles of Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>BIOL:1140</td>
<td>Human Biology: Nonmajors</td>
<td>4</td>
</tr>
<tr>
<td>BIOL:1141</td>
<td>Human Biology: Health Professions</td>
<td>4</td>
</tr>
<tr>
<td>BIOL:1411</td>
<td>Foundations of Biology</td>
<td>4</td>
</tr>
</tbody>
</table>

Mathematics or Statistics

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH:1020</td>
<td>Elementary Functions</td>
<td>4</td>
</tr>
<tr>
<td>MATH:1350</td>
<td>Quantitative Reasoning for Business</td>
<td>4</td>
</tr>
<tr>
<td>MATH:1440</td>
<td>Mathematics for the Biological Sciences</td>
<td>4</td>
</tr>
<tr>
<td>MATH:1460</td>
<td>Calculus for the Biological Sciences</td>
<td>4</td>
</tr>
<tr>
<td>MATH:1850</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>PSQF:4143/STAT:4143</td>
<td>Introduction to Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>STAT:1020/PSQF:1020</td>
<td>Elementary Statistics and Inference</td>
<td>3</td>
</tr>
<tr>
<td>STAT:1030</td>
<td>Statistics for Business</td>
<td>4</td>
</tr>
<tr>
<td>STAT:3510/IGPI:3510</td>
<td>Biostatistics</td>
<td>3</td>
</tr>
</tbody>
</table>

Exercise Science Foundation Courses

Students must complete the four-course departmental core (12 s.h.).

<table>
<thead>
<tr>
<th>Course #</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>HHP:1100</td>
<td>Human Anatomy</td>
<td>3</td>
</tr>
<tr>
<td>HHP:1300</td>
<td>Fundamentals of Human Physiology</td>
<td>3</td>
</tr>
<tr>
<td>HHP:2200</td>
<td>Physical Activity and Health</td>
<td>3</td>
</tr>
<tr>
<td>HHP:2310</td>
<td>Nutrition and Health</td>
<td>3</td>
</tr>
</tbody>
</table>
HHP:4200  Metabolic Exercise Testing and Prescription  4
HHP:4210  Musculoskeletal Exercise Testing and Prescription  4
HHP:4310  Sport and Exercise Nutrition  3

Electives
Students must complete at least 6 s.h. of additional health and human physiology courses (prefix HHP) numbered 2000 or above.

Combined Programs
BS/MS in Athletic Training
The Department of Health and Human Physiology (College of Liberal Arts and Sciences) and the Department of Orthopedics and Rehabilitation (Carver College of Medicine) offer a combined Bachelor of Science/Master of Science in athletic training. The combined degree program allows students to count a limited amount of credit toward both degrees, enabling them to begin the study of athletic training before they complete their bachelor's degree. Coursework taken during the first three years on campus constitutes the required prerequisites for application to the master's degree program.

Admission
Students apply to the MS program in their third year of undergraduate study. Admission to the MS program in athletic training is for summer entry. Students should consult their advisor about the appropriate sequence of courses and other requirements.

For more information, see the MS in athletic training in the Carver College of Medicine section of the catalog.

Honors
Honors in the Major
Students have the opportunity to graduate with honors in the major. Departmental honors students must maintain an overall grade-point average (GPA) of at least 3.33 in work for their major and a cumulative University of Iowa GPA of at least 3.33.

In order to graduate with honors in the major, students must successfully complete the honors research course sequence HHP:4800 Research Methods and Ethics and HHP:4900 Honors Research; write an honors thesis that is judged to be of honors quality; and make an oral or poster presentation of the honors thesis in an approved venue, such as a department research seminar or professional conference.

University of Iowa Honors Program
In addition to honors in the major, students have opportunities for honors study and activities through membership in the University of Iowa Honors Program. Visit Honors at Iowa to learn about the university's honors program.

Membership in the UI Honors Program is not required to earn honors in the exercise science major.

Career Advancement
The Pomerantz Career Center offers multiple resources to help students find internships and jobs.

Academic Plans
Four-Year Graduation Plan
The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the university’s Four-Year Graduation Plan. Courses in the major are those required to complete the major; they may be offered by departments other than the major department.

Before the fifth semester begins: one foundation course and at least six more courses in the major.

Before the seventh semester begins: at least six more courses in the major (total of 13) and at least 90 s.h. earned toward the degree.

Before the eighth semester begins: at least two more courses in the major (total of 15).

During the eighth semester: enrollment in all remaining coursework in the major, all remaining GE CLAS Core courses, and a sufficient number of semester hours to graduate.

Sample Plan of Study
Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Exercise Science, BS
Course Title Hours
Academic Career
Any Semester
GE CLAS Core: Sustainability a

First Year
Fall
CHEM:1070 General Chemistry I b 3
RHET:1030 Rhetoric or ENGL:1200 The Interpretation of Literature 3 - 4
GE CLAS Core: Diversity and Inclusion c 3
GE CLAS Core: Social Sciences c 3
CSi:1600 Success at Iowa 2

Total Hours 14-15

Spring
CHEM:1080 General Chemistry II 3
HHP:2200 Physical Activity and Health d 3
Major: math/statistics major requirement d 3
RHET:1030 Rhetoric or ENGL:1200 The Interpretation of Literature 3 - 4
Elective course e 3

Total Hours 15-16

Second Year
Fall
HHP:2310 Nutrition and Health 3
Major: biology requirement  
GE CLAS Core: Historical Perspectives  
GE CLAS Core: World Languages First Level  
Proficiency or elective course  
Elective course  

<table>
<thead>
<tr>
<th>Hours</th>
<th>16-17</th>
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Spring  
HHP:1100  Human Anatomy  
HHP:3045  Physical Activity Psychology  
GE CLAS Core: International and Global Issues  
GE CLAS Core: World Languages Second Level  
Proficiency or elective course  
Elective course  

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<tr>
<th>Hours</th>
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Third Year  
Fall  
HHP:1300  Fundamentals of Human Physiology  
HHP:4310  Sport and Exercise Nutrition  
GE CLAS Core: Literary, Visual, and Performing Arts  
GE CLAS Core: World Languages Third Level  
Proficiency or elective course  
Elective course  

<table>
<thead>
<tr>
<th>Hours</th>
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</tr>
</thead>
</table>

Spring  
HHP:2350  Biomechanics of Sport and Physical Activity  
HHP:3400  Applied Exercise Physiology  
GE CLAS Core: World Languages Fourth Level  
Proficiency or elective course  
Elective course  

<table>
<thead>
<tr>
<th>Hours</th>
<th>16-17</th>
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</table>

Fourth Year  
Fall  
HHP:4200  Metabolic Exercise Testing and Prescription  
Major: elective course  
Elective course  
Elective course  

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<thead>
<tr>
<th>Hours</th>
<th>15</th>
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Spring  
HHP:4210  Musculoskeletal Exercise Testing and Prescription  
Major: elective course  
Elective course  
Elective course  
Elective course  

<table>
<thead>
<tr>
<th>Hours</th>
<th>15</th>
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<tr>
<th>Hours</th>
<th>123-129</th>
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International and Global Issues; Literary, Visual, and Performing Arts; or Values and Culture.  
b Course not required before CHEM:1080 if student has completed high school chemistry.  
c GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.  
d Fulfills a major requirement and may fulfill a GE requirement.  
e Students may use elective courses to earn credit towards the total s.h. required for graduation or to complete a double major, minors, or certificates.  
f Students who have completed four years of a single language in high school have satisfied the GE CLAS Core World Languages requirement. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course.  
g Students must complete at least 6 s.h. selected from HHP courses numbered 2000 or above.  
h Please see Academic Calendar, Office of the Registrar website for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Degree Services.

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Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative and Formal Reasoning; Social Sciences; Historical Perspectives;  