Health and Human Physiology

Chair
• Kelly J. Cole

Undergraduate majors: health and human physiology (B.A.); human physiology (B.S.); athletic training (B.S.); sport and recreation management (B.S.); therapeutic recreation (B.S.)

Undergraduate minors: human physiology; physical activity and nutrition science; sport and recreation management

Graduate degrees: M.A. in leisure studies; M.S. in health and human physiology; Ph.D. in health and human physiology

Faculty: http://clas.uiowa.edu/hhp/people/faculty

Web site: http://clas.uiowa.edu/hhp/

The Department of Health and Human Physiology offers undergraduate majors and minors and graduate degree programs in health and human physiology and related areas. The department also administers the Certificate in Disability Studies. In addition, the Department of Health and Human Physiology is home to the Health and Physical Activity Skills Program, which offers courses that provide instruction and practice in lifetime sports, fitness training, and wellness activities aimed at enhancing physical health and well-being. Undergraduates in all majors may use several health and human physiology courses to fulfill requirements of the College of Liberal Arts and Sciences General Education Program. The department's First-Year Seminar is designed for entering undergraduate students.

Undergraduate Programs of Study

• Major in health and human physiology (Bachelor of Arts)
• Major in human physiology (Bachelor of Science)
• Major in athletic training (Bachelor of Science)
• Major in sport and recreation management (Bachelor of Science)
• Major in therapeutic recreation (Bachelor of Science)
• Minor in human physiology
• Minor in physical activity and nutrition science
• Minor in sport and recreation management

Students may complete a major in health and human physiology (B.A.) or a major in human physiology (B.S.), but not both.

Students majoring in health and human physiology (B.A.) or human physiology (B.S.) or athletic training (B.S.) may not earn the minor in human physiology or the minor in physical activity and nutrition science.

Students majoring in sport and recreation management (B.S.) may not earn the minor in sport and recreation management.

Bachelor of Arts: Health and Human Physiology

The Bachelor of Arts with a major in health and human physiology requires a minimum of 120 s.h., including work for the major, which varies by track. The health promotion track requires a total of 49-51 s.h. of work for the major; the health studies track requires 40-42 s.h. of work for the major; and the exercise science track requires 51-53 s.h. of work for the major. Students must maintain a g.p.a. 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 General Education Program.

The health promotion track is intended for students seeking careers that promote wellness in the community and the workplace. The health studies track is designed for students who want a more flexible health science curriculum. The exercise science track is intended for students seeking careers as professionals in fitness and in strength and conditioning.

Students majoring in health and human physiology (B.A.) may not earn a second degree in human physiology (B.S.).

Students in all tracks are required to complete a set of common requirements as well as additional courses required specifically for their track.

The major in health and human physiology requires the following course work.

Common Requirements
Each track requires the following science and math foundation (minimum of 10 s.h.) and the departmental core (15 s.h.).

SCIENCE AND MATH FOUNDATION
All students complete three foundation courses (minimum of 10 s.h.): one each in chemistry, biology, and mathematics or statistics.

Chemistry—one of these:
CHEM:1080 General Chemistry II 3 s.h.
CHEM:1120 Principles of Chemistry II 4 s.h.

Biology—one of these:
BIOL:1140 Human Biology 4 s.h.
BIOL:1141 Introductory Animal Biology 4 s.h.
BIOL:1411 Foundations of Biology 4 s.h.

Mathematics or statistics—one of these:
MATH:1020 Elementary Functions 4 s.h.
MATH:1380 Calculus and Matrix Algebra for Business 4 s.h.
MATH:1440 Mathematics for the Biological Sciences 4 s.h.
MATH:1460 Calculus for the Biological Sciences 4 s.h.
MATH:1850 Calculus I 4 s.h.
PSQF:4143/STAT:4143 Introduction to Statistical Methods 3 s.h.
STAT:1020 Elementary Statistics and Inference 3 s.h.
DEPARTMENTAL CORE
All students must complete the five-course departmental core (15 s.h.).
All of these:
HHP:1100 Human Anatomy 3 s.h.
HHP:1300 Fundamentals of Human Physiology 3 s.h.
HHP:2200 Physical Activity and Health 3 s.h.
HHP:2310 Nutrition and Health 3 s.h.
HHP:3400 Applied Exercise Physiology 3 s.h.

Health Promotion Track Requirements
Health promotion track students also complete the following health promotion core courses (15 s.h.) and guided electives (9 s.h.) in addition to the courses listed under "Common Requirements" above (math and science foundation and departmental core).
HEALTH PROMOTION: CORE
All of these:
HHP:3200 Health Behavior and Health Promotion 3 s.h.
HHP:3430 Community and Worksite Health Promotion 3 s.h.
HHP:4200 Metabolic Exercise Testing and Prescription 3 s.h.
HHP:4320 Nutrition Interventions 3 s.h.
HHP:4420 Planning and Evaluating Health Interventions 3 s.h.

HEALTH PROMOTION: GUIDED ELECTIVES
Students must complete at least 9 s.h. selected from the courses below, including at least 6 s.h. in courses numbered 3000 or above.
HHP:2130 Human Development Through the Life Span 3 s.h.
HHP:3050 Obesity: Causes, Consequences, Prevention, and Treatment 3 s.h.
HHP:3100 Health Literacy 3 s.h.
HHP:3420 College Health Education 3 s.h.
HHP:3440 Physical Activity and Healthy Communities 3 s.h.
HHP:3850 Promoting Health Globally 3 s.h.
HHP:4195 Exercise Programming for Special Populations 3 s.h.
HHP:4210 Musculoskeletal Exercise Testing and Prescription 3 s.h.
HHP:4390 Understanding Human Disease 3 s.h.
HHP:4400 Health Promotion Clinical Practicum (may be taken twice) 1 s.h.
HHP:4405 Health Promotion Community and Worksite Practicum (may be taken twice) 1 s.h.
HHP:4440 Physiology of Nutrition 3 s.h.
HHP:4500 Undergraduate Independent Study arr.
HHP:4950 Health Promotion Honors Problems 3-4 s.h.
ACCT:2100 Introduction to Financial Accounting 3 s.h.

ASPC:1800 Basic Aspects of Aging 3 s.h.
JMC:3150 Media and Health 3 s.h.
RCE:4175 Motivational Interviewing 3 s.h.
RCE:4185 Introduction to Substance Abuse 3 s.h.

Exercise Science Track Requirements
Exercise science track students complete the following exercise science core courses (18 s.h.) and guided electives (8 s.h.) in addition to the courses listed under "Common Requirements" above (the math and science foundation and the departmental core).
EXERCISE SCIENCE: CORE
All of these:
HHP:2350 Biomechanics of Sport and Physical Activity 3 s.h.
HHP:2500 Psychological Aspects of Sport and Physical Activity 3 s.h.
HHP:4200 Metabolic Exercise Testing and Prescription 3 s.h.
HHP:4210 Musculoskeletal Exercise Testing and Prescription 3 s.h.
HHP:4310 Sport and Exercise Nutrition 3 s.h.
HHP:4390 Understanding Human Disease 3 s.h.

EXERCISE SCIENCE: GUIDED ELECTIVES
Students must complete at least 8 s.h. from the courses below, including at least 6 s.h. in courses numbered 3000 or above.
ATEP: 2030 Basic Athletic Training 3 s.h.
HHP: 1110 Human Anatomy Laboratory 1 s.h.
HHP: 1310 Human Physiology Laboratory 1 s.h.
HHP: 2210 Principles of Exercise Leadership 3 s.h.
HHP: 3030 Coaching for Health and Wellness 3 s.h.
HHP: 3050 Obesity: Causes, Consequences, Prevention, and Treatment 3 s.h.
HHP: 3148 Introduction to Personal Training 3 s.h.
HHP: 3300 Human Growth and Motor Development 3 s.h.
HHP: 3650 Advanced Sport and Exercise Psychology 3 s.h.
HHP: 3860 Leadership Theory for Health and Fitness 3 s.h.
HHP: 4150 Clinical Exercise Physiology 3 s.h.
HHP: 4190 Scientific Basis of Training for Elite Performance 3 s.h.
HHP: 4195 Exercise Programming for Special Populations 3 s.h.
HHP: 4230 Motor Learning: Theory and Application 3 s.h.
HHP: 4350 Practicum in Personal Training 2 s.h.
HHP: 4360 Practicum in Group Fitness Instruction 2 s.h.
HHP: 4370 Practicum in Strength and Conditioning 2 s.h.
SRM: 3151 Liability in Sport and Recreation 3 s.h.
SPST: 2081 Theory and Ethics of Coaching 3 s.h.

The department recommends that exercise science students also complete the following two courses.
ATEP: 1000 First Aid and CPR 2 s.h.
PSY: 1001 Elementary Psychology 3 s.h.

**Bachelor of Science: Human Physiology**

The Bachelor of Science with a major in human physiology requires a minimum of 120 s.h., including 57 s.h. of work for the major (26 s.h. in health and human physiology and 31 s.h. in required cognate courses). Students must maintain a g.p.a. 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 General Education Program.

The major in human physiology is designed primarily for individuals who intend to continue their education beyond the B.S. in the health professions, including medicine, dentistry, optometry, physician assistant, physical therapy, and podiatry, and for those who intend to pursue graduate degrees in basic life sciences.

Students majoring in human physiology (B.S.) may not earn a second degree in health and human physiology (B.A.).

In addition to course work required for the major, students are encouraged to include specific electives to complete the credit required for graduation; see “Recommended Electives” below. The department recommends that students fulfill the General Education Program's Natural Sciences requirement by taking CHEM: 1110 Principles of Chemistry I, CHEM: 1120 Principles of Chemistry II, and BIOL: 1411 Foundations of Biology. It also recommends that they fulfill the Social Sciences requirement with PSY: 1001 Elementary Psychology.

The major in human physiology requires the following course work.

**HUMAN PHYSIOLOGY**

All of these:

- HHP: 1100 Human Anatomy 3 s.h.
- HHP: 1110 Human Anatomy Laboratory 1 s.h.
- HHP: 1310 Human Physiology Laboratory 1 s.h.
- HHP: 3500 Human Physiology 3 s.h.
- HHP: 3510 Advanced Human Physiology Laboratory 3 s.h.
- HHP: 3900 Writing for Health and Human Physiology 3 s.h.
- HHP: 4130 Skeletal Muscle Physiology 3 s.h.
- HHP: 4150 Clinical Exercise Physiology 3 s.h.
- HHP: 4200 Metabolic Exercise Testing and Prescription 3 s.h.
- HHP: 4210 Musculoskeletal Exercise Testing and Prescription 3 s.h.
- HHP: 4220 Biomechanics of Human Motion 3 s.h.
- HHP: 4230 Motor Learning: Theory and Application 3 s.h.
- HHP: 4250 Human Pathophysiology 3 s.h.
- HHP: 4300 Neural Control of Posture and Movement 3 s.h.
- HHP: 4410 Exercise Physiology 3 s.h.
- HHP: 4440 Physiology of Nutrition 3 s.h.
- HHP: 4450 Genetic Basis of Disease 3 s.h.
- HHP: 4460 Cardiovascular Physiology 3 s.h.
- HHP: 4470 Physiology of Aging 3 s.h.
- HHP: 4480 Introduction to Human Pharmacology 3 s.h.
- HHP: 4500 Undergraduate Independent Study arr.
- HHP: 4510 Energy Metabolism in Health and Disease 3 s.h.
- HHP: 4900 Honors Research II 3 s.h.
- BIOL: 2254 Endocrinology 3 s.h.
- BIOL: 2512 Fundamental Genetics 4 s.h.
- BIOL: 2603 Mechanisms of Aging 3 s.h.
- BIOL: 2723 Cell Biology 3 s.h.
- BIOL: 2735 Introduction to Neurobiology 3 s.h.
- BIOL: 3233 Introduction to Developmental Biology 3 s.h.
- MICR: 2157 General Microbiology 5 s.h.

**COGNATE AREAS**

Students must earn a minimum of 31 s.h. in cognate areas—subjects outside of human physiology—by completing courses from the following lists.
<table>
<thead>
<tr>
<th><strong>Biology</strong></th>
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<tbody>
<tr>
<td>This sequence:</td>
<td></td>
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<tr>
<td>BIOL:1411-BIOL:1412 Foundations of Biology - Diversity of Form and Function</td>
<td>8 s.h.</td>
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<table>
<thead>
<tr>
<th><strong>Chemistry</strong></th>
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<tbody>
<tr>
<td>Students must complete CHEM:1110 before they may register for CHEM:1120.</td>
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<tr>
<td>Both of these:</td>
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<tr>
<td>CHEM:1110 Principles of Chemistry I</td>
<td>4 s.h.</td>
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<tr>
<td>CHEM:1120 Principles of Chemistry II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>These additional chemistry courses are highly recommended.</td>
<td></td>
</tr>
<tr>
<td>CHEM:2210 Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>CHEM:2220 Organic Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>CHEM:2410 Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
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<tr>
<th><strong>Mathematics</strong></th>
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<tr>
<td>One of these:</td>
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<tr>
<td>MATH:1460 Calculus for the Biological Sciences</td>
<td>4 s.h.</td>
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<tr>
<td>MATH:1550 Engineering Mathematics I: Single Variable Calculus</td>
<td>4 s.h.</td>
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<tr>
<td>MATH:1850 Calculus I (or a mathematics course numbered above 1850)</td>
<td>4 s.h.</td>
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<tr>
<th><strong>Physics</strong></th>
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<tr>
<td>This sequence:</td>
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<tr>
<td>PHYS:1511-PHYS:1512 College Physics I-II</td>
<td>8 s.h.</td>
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<th><strong>Statistics</strong></th>
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<tr>
<td>At least 3 s.h. from these:</td>
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<tr>
<td>BIOS:4120 Introduction to Biostatistics</td>
<td>3 s.h.</td>
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<tr>
<td>STAT:2010 Statistical Methods and Computing</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>STAT:3510 Biostatistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>STAT:4143/PSQF:4143 Introduction to Statistical Methods</td>
<td>3 s.h.</td>
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<tr>
<th><strong>Recommended Electives</strong></th>
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<tbody>
<tr>
<td>The department recommends that students choose from the following electives in order to complete the minimum of 120 s.h. required for a Bachelor of Science. Additional recommended courses in biology and chemistry are listed under “Courses for the Major: Cognates” above.</td>
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<tr>
<td><strong>Anthropology</strong></td>
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<tr>
<td>ANTH:3305 Human Osteology</td>
<td>3 s.h.</td>
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<tr>
<th><strong>Biochemistry</strong></th>
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<tr>
<td>BIOC:3110 Biochemistry</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BIOC:3120 Biochemistry and Molecular Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BIOC:3130 Biochemistry and Molecular Biology II</td>
<td>3 s.h.</td>
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<tr>
<td>BIOC:3140 Experimental Biochemistry</td>
<td>2 s.h.</td>
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<tr>
<th><strong>Biology</strong></th>
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<tr>
<td>BIOL:2254 Endocrinology</td>
<td>3 s.h.</td>
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<tr>
<td>BIOL:2346 Vertebrate Zoology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BIOL:2512 Fundamental Genetics</td>
<td>4 s.h.</td>
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<tr>
<td>BIOL:2723 Cell Biology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BIOL:2753 Introduction to Neurobiology</td>
<td>3 s.h.</td>
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<tr>
<td>BIOL:3244 Animal Behavior</td>
<td>3, 5 s.h.</td>
</tr>
<tr>
<td>BIOL:3253 Neurobiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BIOL:3343 Animal Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>BIOL:4353 Neurophysiology</td>
<td>3 s.h.</td>
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<tr>
<th><strong>Chemistry</strong></th>
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<tbody>
<tr>
<td>CHEM:2210 Organic Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>CHEM:2220 Organic Chemistry II</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>CHEM:2410 Organic Chemistry Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>CHEM:3110 Analytical Chemistry I</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>CHEM:3120 Analytical Chemistry II</td>
<td>3 s.h.</td>
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<tr>
<td>CHEM:4431 Physical Chemistry I</td>
<td>3 s.h.</td>
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<tr>
<th><strong>Classics</strong></th>
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<tr>
<td>CLSA:3750 Medical and Technical Terminology</td>
<td>2 s.h.</td>
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<tr>
<th><strong>Communication Sciences and Disorders</strong></th>
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<tbody>
<tr>
<td>CSD:2140 Manual Communication</td>
<td>1 s.h.</td>
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<tr>
<td>CSD:3116 Basic Neuroscience for Speech and Hearing</td>
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<tr>
<th><strong>Computer Science</strong></th>
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<tr>
<td>CS:1020 Principles of Computing</td>
<td>3 s.h.</td>
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<tr>
<td>CS:1110 Introduction to Computer Science</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>CS:1210 Computer Science I: Fundamentals</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>ENGR:2730 Computers in Engineering</td>
<td>3 s.h.</td>
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<tr>
<th><strong>Education</strong></th>
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<tr>
<td>RCE:4185 Introduction to Substance Abuse</td>
<td>3 s.h.</td>
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<th><strong>Engineering</strong></th>
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<tr>
<td>ENGR:2110 Engineering Fundamentals I: Statics</td>
<td>2 s.h.</td>
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<tr>
<td>ENGR:2710 Dynamics</td>
<td>3 s.h.</td>
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<tr>
<td>ENGR:2750 Mechanics of Deformable Bodies</td>
<td>3 s.h.</td>
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<th><strong>English</strong></th>
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<tr>
<td>CNW:2680 The Art and Craft of Creative Nonfiction</td>
<td>3 s.h.</td>
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<tr>
<th><strong>Free Radical and Radiation Biology</strong></th>
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<tbody>
<tr>
<td>FRRB:5000 Radiation Biology</td>
<td>4 s.h.</td>
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<tr>
<th><strong>Microbiology</strong></th>
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<tbody>
<tr>
<td>MICR:2157 General Microbiology</td>
<td>5 s.h.</td>
</tr>
<tr>
<td>MICR:3112 Pharmacy Microbiology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>MICR:3147 Survey of Immunology</td>
<td>3 s.h.</td>
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<tr>
<td>MICR:3164 Nursing Microbiology</td>
<td>4 s.h.</td>
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<tr>
<th><strong>Pharmacology</strong></th>
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<tr>
<td>PCOL:2120 Drugs: Their Nature, Action, and Use</td>
<td>2 s.h.</td>
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<tr>
<td>PCOL:4130 Drug Mechanisms and Actions</td>
<td>3 s.h.</td>
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<tr>
<th><strong>Psychological and Brain Sciences</strong></th>
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<tr>
<td>PSY:1001 Elementary Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>PSY:2930 Abnormal Psychology: Health Professions</td>
<td>3 s.h.</td>
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</table>
required to comply with entrance and periodic health policies. All students admitted to the major in athletic training are required to complete a minimum of 120 s.h., including 53 s.h. of work for the major plus one prerequisite (1 s.h.) for application to the major and several prerequisites (34-36 s.h.) to course work for the major. Students must maintain a g.p.a. 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 General Education Program.

The major provides concentrated studies and clinical experiences that lead to national certification in athletic training. The Department of Health and Human Physiology collaborates with the Department of Orthopaedics and Rehabilitation (Carver College of Medicine) to offer the major.

Athletic trainers work with active patients, including athletes, to help prevent injuries, offer advice about proper equipment, recognize and evaluate injuries, administer emergency treatment, and determine need for specialized medical care. Athletic trainers also work as members of health care teams involved in postinjury rehabilitation.

Employment opportunities for graduates include work as health care professionals for sports medicine clinics and hospitals; these individuals often work with secondary school athletic teams. Additional education usually is required for employment with professional, college, and university athletic teams and for specialized positions in corporations, industry, and other areas. Teacher certification is recommended but not required.

Admission to the major in athletic training is competitive; students must apply, meet technical standards, and comply with health and safety policies. They may be admitted as first-year students and begin course work for the major. Students must complete this course before they apply for admission to the athletic training major.

Students who have formally contacted the athletic training program director before enrolling at the University of Iowa should talk to an athletic training advisor or their academic advisor upon entering the University.

Early advising for course selection is vital to ensure that students take prerequisites and sequenced skill development courses in the right order. Students should begin taking prerequisites for required major courses during their first year and should complete their final prerequisites after admission to the athletic training major.

For current information on rules, procedures, and curriculum, contact the athletic training program director.

The major in athletic training requires the following course work.

**ADMISSION PREREQUISITE**

Students must complete this course before they apply for admission to the athletic training major.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ATEP:1010</td>
<td>Exploring Athletic Training</td>
<td>1 s.h.</td>
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**PREREQUISITES TO COURSE WORK FOR THE MAJOR**

Students must complete the following courses (34-36 s.h.) as they begin course work for the major.

**One of these:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BIOL:1140</td>
<td>Human Biology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BIOL:1141</td>
<td>Introductory Animal Biology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BIOL:1411</td>
<td>Foundations of Biology</td>
<td>4 s.h.</td>
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</table>

**One of these sequences:**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CHEM:1070 &amp;</td>
<td>&amp; CHEM:1080 General Chemistry</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>CHEM:1110 &amp;</td>
<td>&amp; CHEM:1120 Principles of</td>
<td>8 s.h.</td>
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<tr>
<td></td>
<td>Chemistry I-II</td>
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**One of these:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHYS:1400</td>
<td>Basic Physics</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>PHYS:1511</td>
<td>College Physics I</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

**All of these:**

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<td>Human Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>SRM:1045</td>
<td>Health for Living</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>PSQF:1075</td>
<td>Educational Psychology and</td>
<td>3 s.h.</td>
</tr>
<tr>
<td></td>
<td>Measurement</td>
<td></td>
</tr>
<tr>
<td>PSY:1001</td>
<td>Elementary Psychology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>STAT:1020/PSQF:1020</td>
<td>Elementary Statistics and Inference (or equivalent)</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**COURSES FOR THE MAJOR**

Students must complete the following course work for the major (53 s.h.).

**All of these:**

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>&amp; ATEP:2020 Practicum in Athletic Training I-II</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>ATEP:2040</td>
<td>Clinical Sciences I</td>
<td>2 s.h.</td>
</tr>
</tbody>
</table>

**Bachelor of Science: Athletic Training**

The Bachelor of Science with a major in athletic training requires a minimum of 120 s.h., including 53 s.h. of work for the major plus one prerequisite (1 s.h.) for application to the major and several prerequisites (34-36 s.h.) to course work for the major. Students must maintain a g.p.a. 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 General Education Program.

The major provides concentrated studies and clinical experiences that lead to national certification in athletic training. The Department of Health and Human Physiology collaborates with the Department of Orthopaedics and Rehabilitation (Carver College of Medicine) to offer the major.

Athletic trainers work with active patients, including athletes, to help prevent injuries, offer advice about appropriate equipment, recognize and evaluate injuries, administer emergency treatment, and determine need for specialized medical care. Athletic trainers also work as members of health care teams involved in postinjury rehabilitation.

Employment opportunities for graduates include work as health care professionals for sports medicine clinics and hospitals; these individuals often work with secondary school athletic teams. Additional education usually is required for employment with professional, college, and university athletic teams and for specialized positions in corporations, industry, and other areas. Teacher certification is recommended but not required.

Admission to the major in athletic training is competitive; students must apply, meet technical standards, and comply with health and safety policies. They may be admitted as first-year students and begin course work for the major. Students must complete this course before they apply for admission to the athletic training major.

Students who have formally contacted the athletic training program director before enrolling at the University of Iowa should talk to an athletic training advisor or their academic advisor upon entering the University.

Early advising for course selection is vital to ensure that students take prerequisites and sequenced skill development courses in the right order. Students should begin taking prerequisites for required major courses during their first year and should complete their final prerequisites after admission to the athletic training major.

For current information on rules, procedures, and curriculum, contact the athletic training program director.

The major in athletic training requires the following course work.

**ADMISSION PREREQUISITE**

Students must complete this course before they apply for admission to the athletic training major.

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATEP:1010</td>
<td>Exploring Athletic Training</td>
<td>1 s.h.</td>
</tr>
</tbody>
</table>

**PREREQUISITES TO COURSE WORK FOR THE MAJOR**

Students must complete the following courses (34-36 s.h.) as they begin course work for the major.

**One of these:**

<table>
<thead>
<tr>
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<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOL:1140</td>
<td>Human Biology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BIOL:1141</td>
<td>Introductory Animal Biology</td>
<td>4 s.h.</td>
</tr>
<tr>
<td>BIOL:1411</td>
<td>Foundations of Biology</td>
<td>4 s.h.</td>
</tr>
</tbody>
</table>

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>CHEM:1070 &amp;</td>
<td>&amp; CHEM:1080 General Chemistry</td>
<td>6 s.h.</td>
</tr>
<tr>
<td>CHEM:1110 &amp;</td>
<td>&amp; CHEM:1120 Principles of</td>
<td>8 s.h.</td>
</tr>
<tr>
<td></td>
<td>Chemistry I-II</td>
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<td>Elementary Statistics and Inference (or equivalent)</td>
<td>3 s.h.</td>
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**COURSES FOR THE MAJOR**

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<tr>
<td>ATEP:2040</td>
<td>Clinical Sciences I</td>
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</table>
HEALTH AND HUMAN PHYSIOLOGY

ATEP:2060 Advanced Emergency Care for Athletic Trainers 2 s.h.
ATEP:3010 Clinical Sciences III 3 s.h.
ATEP:3020 Clinical Sciences V: Rehabilitation 2 s.h.
ATEP:3030 Practicum in Athletic Training III (must be taken twice) 6 s.h.
ATEP:3040 Clinical Sciences IV 3 s.h.
ATEP:4010 Administration of Athletic Training Programs 2 s.h.
HHP:3060 Advanced Human Anatomy for Athletic Trainers 4 s.h.
ORTH:4187 Practicum in Athletic Training IV (must be taken twice) 8 s.h.
PCOL:2120 Drugs: Their Nature, Action, and Use 2 s.h.

One of these:
HHP:1300 Fundamentals of Human Physiology 3 s.h.
HHP:3500 Human Physiology 3 s.h.
One of these:
HHP:2310 Nutrition and Health 3 s.h.
HHP:4440 Physiology of Nutrition 3 s.h.
One of these:
HHP:2350 Biomechanics of Sport and Physical Activity 3 s.h.
HHP:4220 Biomechanics of Human Motion 3 s.h.
One of these:
HHP:3400 Applied Exercise Physiology 3 s.h.
HHP:4410 Exercise Physiology 3 s.h.
One of these:
HHP:2500 Psychological Aspects of Sport and Physical Activity 3 s.h.
RCE:4199 Counseling for Related Professions 3 s.h.

Bachelor of Science: Sport and Recreation Management

The Bachelor of Science with a major in sport and recreation management requires a minimum of 120 s.h., including 48 s.h. of work for the major (27 s.h. in sport and recreation management, 12 s.h. in supporting course work from other disciplines, and 9 s.h. in field experience). Students must maintain a g.p.a. 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 General Education Program.

The sport and recreation management major prepares students for leadership in meeting the challenges of sport. Its comprehensive curriculum uses an integrative business approach and provides a collaborative environment for learning how to analyze and resolve challenges in the business and culture of sport locally, nationally, and internationally.

The major is appropriate for students who want to work with sport and club teams, intercollegiate and high school athletic programs, international sport organizations, national and international amateur sport organizations, community recreation, and firms specializing in sport marketing, sport sponsorship, and commercial fitness businesses.

Students interested in sport and recreation management learn skills for organizing, planning, and budgeting in a variety of settings. They prepare for work in positions such as activities director, community recreation specialist, campus recreation professional, and program coordinator in a park or recreation department.

The major also provides a foundation for graduate study in sport or recreation management and related graduate degree programs.

The sport and recreation management major requires the following course work.

FOUNDATION COURSES

All of these:
SRM:1060 Contemporary Issues in Sports 3 s.h.
SRM:3157 Managerial Operations in Sport and Recreation 3 s.h.
SRM:3175 Sales in Sport 3 s.h.
SRM:3178 Communications and Public Relations in Sports 3 s.h.

Students must have completed 30 s.h. before they enroll in the following courses.

All of these:
SRM:3151 Liability in Sport and Recreation 3 s.h.
SRM:3152 Sport and Recreation Facility Management 3 s.h.
SRM:3153 Sport Business Practices 3 s.h.
SRM:3158 Sport and Recreation Promotion 3 s.h.
SRM:3172 Finance in Sport and Recreation 3 s.h.

FIELD EXPERIENCE

Students are required to complete 9 s.h. of field experience (consult with the departmental field experience coordinator).

Any combination of these courses for a minimum of 9 s.h.
SRM:4196 Internship 9 s.h.
SRM:4197 Sport and Recreation Business Practicum 1-3 s.h.

CONCENTRATION AREAS

Students must complete 12 s.h. in one of the following concentration areas: business studies; coaching and sport instruction; communications public relations/journalism; entrepreneurship; event management; sport and diversity; or the student-designed concentration. Some of these courses below have prerequisites; students must complete all of a course's prerequisites before they may register for the course.

Business Studies Concentration

SRM:2065 The Experience Economy 3 s.h.
SRM:3176 Sports Analytics for Coaches, Managers, and Other Decision Makers 3 s.h.
SRM:3300 Writing for Sport and Recreation Managers 3 s.h.
SRM:4198 NCAA Rules Compliance and Enforcement 3 s.h.
Concentration Communications Public Relations/Journalism

Contact an advisor for more information.

should be submitted to the Iowa Board of Education.

the necessary documents for application; all materials

be taken online or at a community college. Students obtain
course entitled Prevention and Care of Athletic Injuries can

are not required, students must complete two of the four

requirement, students must complete two of the four

s.h. each or 45 hours each, so to meet the minimum

Interscholastic Athletics. Each of these courses are 3

Growth and Motor Development, and SRM:3149 Coaching

Coaching Certification Process

University of Iowa students who want to complete the

coaching concentration and who want to obtain an Iowa

license must take a minimum of 55 hours of instruction

and course work. These courses available at the UI are

eligible for consideration: ATEP:2030 Basic Athletic

Training, HHP:1100 Human Anatomy, HHP:3300 Human

Growth and Motor Development, and SRM:3149 Coaching

Interscholastic Athletics. Each of these courses are 3

s.h. each or 45 hours each, so to meet the minimum

requirement, students must complete two of the four
courses. If a student has taken SRM:3149, another 2 s.h.
course entitled Prevention and Care of Athletic Injuries can
be taken online or at a community college. Students obtain
the necessary documents for application; all materials
should be submitted to the Iowa Board of Education.
Contact an advisor for more information.

Communications Public Relations/Journalism Concentration

JMC:1100 Media Uses and Effects 3 s.h.
JMC:1200 Media History and Culture 3 s.h.
JMC:1500 Social Media Today 3 s.h.
JMC:2200 Communication and Public Relations 3 s.h.
JMC:3135 New Media and the Future of Sport 3 s.h.
JMC:3181 The Business of Sport Communication 3 s.h.
JMC:3182 Sport, Scandal, and Strategic Communication in Media Culture 3 s.h.
JMC:3190 Classics of Sports Journalism: From Jack London to Grantland 3 s.h.
JMC:3400 Specialized Reporting and Writing 4 s.h.
JMC:3412 Strategic Communication Writing 4 s.h.
RHET:2085 Speaking Skills 3 s.h.
SRM:3300 Writing for Sport and Recreation Managers 3 s.h.

Entrepreneurship Concentration


ECON:3690 Sports Economics 3 s.h.
ENTR:1350 Foundations in Entrepreneurship 2 s.h.
ENTR:2000 Entrepreneurship and Innovation 3 s.h.
ENTR:3100 Entrepreneurial Finance 3 s.h.
ENTR:3200 Entrepreneurial Marketing 3 s.h.
ENTR:3300 Legal Aspects of Entrepreneurship 3 s.h.
ENTR:3400 Strategic Management of Technology and Innovation 3 s.h.
ENTR:3500 Social Entrepreneurship 3 s.h.
ENTR:3595 Nonprofit Organizational Effectiveness I 3 s.h.
ENTR:3600 E-Commerce Strategies for Entrepreneurs 3 s.h.
ENTR:4400 Managing the Growth Business 3 s.h.
ENTR:4450 Professional Sports Management 3 s.h.

Event Management Concentration

Students complete the requirements as designated below. No more than 6 s.h. may be applied to this concentration if also used toward the completion of the Certificate in Event Planning. In order to avoid duplication of course work beyond the allowed 6 s.h., students should take additional course work.

Both of these:

SRM:3147 Sport Event Management 3 s.h.
SRM:3154 Foundations of Event Management 3 s.h.
And, they must complete at least 6 s.h. from these.

SRM:2065 The Experience Economy 3 s.h.
SRM:3300 Writing for Sport and Recreation Managers 3 s.h.
BUS:3800 Business Writing 3 s.h.
ENTR:1350 Foundations in Entrepreneurship 2 s.h.
ENTR:2000 Entrepreneurship and Innovation 3 s.h.
ENTR:3500 Social Entrepreneurship 3 s.h.
ENTR:3600 E-Commerce Strategies for Entrepreneurs 3 s.h.
ENTR:4450 Professional Sports Management 3 s.h.
JMC:1500 Social Media Today 3 s.h.
RHET:2085 Speaking Skills 3 s.h.
The therapeutic recreation program prepares students for professional work with persons who have disabilities, impairments, and illnesses. Both of the major's tracks emphasize the use of a systematic process of assessment, planning, implementation, and evaluation in order to provide recreation, leisure, and play activities to individuals and populations.

Admission to both tracks is selective; students must apply and be admitted.

The major in therapeutic recreation (child life track and inclusive recreation track) requires the following course work.

**Sport and Diversity Concentration**

- SRM:1040 The Good Society 3 s.h.
- SRM:1072 Leisure and the Liberal Arts 3 s.h.
- SRM:3300 Writing for Sport and Recreation Managers 3 s.h.
- AFAM:1030 Introduction to African American Society 3 s.h.
- AFAM:3925 African Americans and the Media 3 s.h.
- ANTH:1401 Language, Culture, and Communication 3 s.h.
- CLSA:1875 Ancient Sports and Leisure 3 s.h.
- COMM:1174 Media and Society 3 s.h.
- COMM:4143 Classical Rhetoric and Greek Culture 3 s.h.
- HHP:2500 Psychological Aspects of Sport and Physical Activity 3 s.h.
- HIST:1040 Perspectives: Diversity in American History 3 s.h.
- JMC:1200 Media History and Culture 3 s.h.
- JMC:3125 Media and Consumers 3 s.h.
- RELS:2700 Sacred World of Native Americans 3 s.h.
- RHET:2085 Speaking Skills 3 s.h.
- SPAN:2700 Introduction to Latin American Studies 3 s.h.
- SPST:1074/AMST:1074/GWSS:1074 Inequality in American Sport 3 s.h.
- TR:1070 Perspectives on Leisure and Play 3 s.h.

**Student-Designed Concentration**

Students may develop a concentration in consultation with an academic advisor. They must submit a two-page proposal to the recreation and sport business committee. The proposal should provide a rationale for the student-designed concentration and a description of the student-designed concentration. The concentration requires at least 12 s.h. of course work.

**Bachelor of Science: Therapeutic Recreation**

The Bachelor of Science with a major in therapeutic recreation requires a minimum of 120 s.h., including 63-64 s.h. of work for the major (total credit depends on the track). Students must maintain a g.p.a. 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 General Education Program.

The therapeutic recreation program prepares students for professional work with persons who have disabilities, impairments, and illnesses. Both of the major's tracks emphasize the use of a systematic process of assessment, planning, implementation, and evaluation in order to provide recreation, leisure, and play activities to individuals and populations.

Admission to both tracks is selective; students must apply and be admitted.

The major in therapeutic recreation (child life track and inclusive recreation track) requires the following course work.

**Child Life Track**

The child life track requires 63 s.h. of work for the major (12 s.h. in admission prerequisites plus a total of 51 s.h. in additional courses, supporting course work from other departments, and the required internship). Students must apply and be admitted to the child life track, and they must complete the admission prerequisites before they may enter the track.

Child life specialists are professionals with expertise in child development who advance effective coping through play activities, preparation for medical procedures and operations, patient and family education, and self-expressive activities. Child life specialists provide services to support families and to promote children's mastery of varied experiences, particularly children's health care events. They provide care to children's families by assisting in accurate information processing and helping family members and other caregivers. Child life specialists also help educate other medical staff and community members regarding issues and developmental needs of children involved in health care events or other stressful experiences. For more information about the profession, visit Child Life Council.

Before students who apply to the child life track may be admitted, they must complete 24 s.h. at the University of Iowa (or 12 s.h. for transfer students), including the courses listed under "Child Life: Admission Prerequisites" below. Applicants must have a University of Iowa g.p.a. of at least 3.00 and a cumulative g.p.a. of at least 3.00; students with lower grade-point averages may apply for exceptional admission.

Applicants for admission to the track should use the child life track application form on the Department of Health and Human Physiology web site. Completed applications must be submitted by March 15 for admission the following fall semester (students may enter the child life track only in fall).

Students who complete the child life track curriculum, including the child life internship, are eligible to sit for the Child Life Professional Certification Examination administered by the Child Life Council. Successful completion of the exam confers the Certified Child Life Specialist (CCLS) credential.

The major in therapeutic recreation with the child life track requires the following course work.

**CHILD LIFE: ADMISSION PREREQUISITES**

All of these:

- HHP:1100 Human Anatomy 3 s.h.
- TR:1070 Perspectives on Leisure and Play 3 s.h.
- PSY:1001 Elementary Psychology 3 s.h.

One of these:

- PSY:2501 Introduction to Social Psychology 3 s.h.
- SOC:1010 Introduction to Sociology 3-4 s.h.
- SOC:2220 Principles of Social Psychology 3-4 s.h.

**CHILD LIFE: COMMON CORE**

All of these:

- TR:1061 Recreation Leadership and Programming 3 s.h.
- TR:1077 Introduction to Child Life 3 s.h.
CHILD LIFE: FOUNDATION
All of these:
TR:3165 Child Life: Methods and Materials 3 s.h.
TR:3166 Child Life: Seminar 3 s.h.
TR:3260 Play and Childhood 3 s.h.
TR:4167 Child Life Practicum (taken twice, once for 1 s.h. and once for 2 s.h.) 3 s.h.
One of these:
HHP:2130 Human Development Through the Life Span 3 s.h.
NURS:1030 Human Development and Behavior 3 s.h.
PSY:2401 Introduction to Developmental Science 3 s.h.

CHILD LIFE: SUPPORTING COURSE WORK
Students must complete 9 s.h. from these. Other supporting courses may be added with consent of the student's advisor.
TR:3170 Children and Health Care 3 s.h.
TR:3171 Child Life Practical Application 3 s.h.
TR:3174 Cultural Perspectives in Health Care 3 s.h.
TR:4169 Spring Break Child Life Experience 1 s.h.
CLSA:3750 Medical and Technical Terminology 2 s.h.
DST:3101 Introduction to Disability Studies 3 s.h.
EDTL:3114 Parent-Child Relationships 3 s.h.
EDTL:4940 Characteristics of Disabilities 3 s.h.
EDTL:4990 Interdisciplinary Issues in Disabilities 1-3 s.h.
PSY:2301 Introduction to Clinical Psychology 3 s.h.
PSY:2930 Abnormal Psychology: Health Professions 3 s.h.
RCE:4145 Marriage and Family Interaction 3 s.h.
RCE:4176 Child Abuse: Assessment, Intervention, and Advocacy 3 s.h.
RCE:4199 Counseling for Related Professions 3 s.h.
SOC:2222 Introduction to Social Work 4 s.h.
SOC:3710 The American Family 3 s.h.
SSW:3786 Death/Dying: Issues Across the Life Span 3 s.h.
SSW:6238 Introduction to Play Therapy 2 s.h.

CHILD LIFE: INTERNSHIP
Child life students must complete an internship; they register for the following course.
TR:4192 Child Life Internship 12 s.h.

Inclusive Recreation Track
The inclusive recreation track requires 64 s.h. of work for the major (12 s.h. in admission prerequisites plus a total of 52 s.h. in additional courses, supporting course work from other departments, and the required internship). Students must apply and be admitted to the inclusive recreation track, and they must complete the admission prerequisites before they may enter the track.

Therapeutic recreation (inclusive recreation) is a health-oriented field that involves providing recreation programs designed to improve or maintain the physical, emotional, mental, and social functioning of patients and consumers. Therapeutic services involve a continuum of care that uses recreational activities to improve functional abilities; leisure education to help individuals acquire skills, knowledge, and attitudes that facilitate an independent lifestyle; and other activities to enhance health, growth, development, and independence through intrinsically rewarding leisure behavior. Inclusive recreation provides opportunities for people with all abilities and disabilities to participate together in therapeutic recreation programs based on choice and common interests.

Professionals in the therapeutic recreation (inclusive recreation) field are commonly employed in settings such as skilled nursing facilities, community recreation departments, state and community mental health institutions, general hospitals, physical rehabilitation centers, special recreation districts, correctional facilities, senior centers, facilities for persons with intellectual disabilities or mental illness, and substance-abuse programs.

Before students who apply to the inclusive recreation track may be admitted, they must complete 24 s.h. at the University of Iowa (or 12 s.h. for transfer students), including the courses listed under "Inclusive Recreation: Admission Prerequisites" below. Applicants must have a University of Iowa g.p.a. of at least 2.50 and a cumulative g.p.a. of at least 2.50; students with lower grade-point averages may apply for exceptional admission.

Applicants for admission to the track should use the inclusive recreation track application form on the Department of Health and Human Physiology web site. Completed applications must be submitted by October 15 for admission the following spring semester or by March 15 for admission the following fall semester.

Students who complete the inclusive recreation curriculum, including the therapeutic recreation internship, are eligible to sit for the National Council for Therapeutic Recreation Certification Exam. Successful completion of the exam confers the Certified Therapeutic Recreation Specialist (CTRS) credential.

The major in therapeutic recreation with the inclusive recreation track requires the following course work.

INCLUSIVE RECREATION: ADMISSION PREREQUISITES
All of these:
HHP:1100 Human Anatomy 3 s.h.
TR:1070 Perspectives on Leisure and Play 3 s.h.
PSY:1001 Elementary Psychology 3 s.h.
One of these:
PSY:2501 Introduction to Social Psychology 3 s.h.
SOC:1010 Introduction to Sociology 3-4 s.h.
SOC:2220 Principles of Social Psychology 3-4 s.h.
INCLUSIVE RECREATION: COMMON CORE
All of these:
TR:1061 Recreation Leadership and Programming 3 s.h.
TR:1077 Introduction to Child Life 3 s.h.
TR:3160 Introduction to Therapeutic Recreation 3 s.h.
TR:3161 Assessment and Evaluation in Therapeutic Recreation 3 s.h.
TR:3162 Therapeutic Recreation: Clientele 3 s.h.

INCLUSIVE RECREATION: FOUNDATION
All of these:
TR:3163 Concepts and Issues in Therapeutic Recreation: Advancement of the Profession 3 s.h.
TR:3164 Therapeutic Recreation: Rehabilitation 3 s.h.
TR:3261 Inclusive Recreation 3 s.h.
PSY:2930 Abnormal Psychology: Health Professions 3 s.h.

One of these:
HHP:2130 Human Development Through the Life Span 3 s.h.
NURS:1030 Human Development and Behavior 3 s.h.

INCLUSIVE RECREATION: SUPPORTING COURSE WORK
Students must complete 9 s.h. in supporting course work in human services (aging studies, disability studies, psychology, sociology, social work, and special education). Students should consult their advisor for specific recommendations.

INCLUSIVE RECREATION: INTERNSHIP
Both of these:
TR:4190 Preinternship Seminar 1 s.h.
TR:4191 Therapeutic Recreation Internship 12 s.h.

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.)

B.A.: Health and Human Physiology
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 course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Human Physiology
Before the fifth semester begins: calculus 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 course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Athletic Training
Students entering the major in athletic training must be admitted to the major on schedule in order to complete the Four-Year Graduation Plan.
Before the fifth semester begins: nine courses in the major
Before the seventh semester begins: at least 90 s.h. earned toward the degree
Before the eighth semester: three more courses in the major (total of 12)
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Sport and Recreation Management
Students who choose the internship option, SRM:4196 Internship, should work with their advisor to develop individual graduation plans.
Before the fifth semester begins: four foundation courses, at least 3 s.h. in the concentration area, and 3 s.h. in SRM:4197 Sport and Recreation Business Practicum
Before the seventh semester begins: two more foundation courses (total of six), an additional 6 s.h. in the concentration area, and at least 90 s.h. earned toward the degree
Before the eighth semester begins: two more foundation courses (total of eight), an additional 3 s.h. of SRM:4197, and one remaining concentration area course (3 s.h.)
During the eighth semester: enrollment in final 3 s.h. of SRM:4197, all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

B.S.: Therapeutic Recreation
Before the fifth semester begins: all core courses and at least one foundation course
Before the seventh semester begins: two more foundation courses (total of three), 3 s.h. of supporting course work, and at least 90 s.h. earned toward the degree
Before the eighth semester begins: two more foundation courses (total of five) and the remaining supporting course work
During the eighth semester: enrollment in all remaining course work in the major, all remaining General Education courses, and a sufficient number of semester hours to graduate

Honors in the Major

Students majoring in health and human physiology, human physiology, athletic training, sport and recreation management, or therapeutic recreation have the opportunity to graduate with honors in the major. Departmental honors students must maintain an overall g.p.a. of at least 3.33 in work for their major.

Exercise science, health promotion, health studies, or human physiology track: in order to graduate with honors in the major, students must successfully complete the honors research course sequence HHP:4800 Honors Research I and HHP:4900 Honors Research II; write an honors thesis that is deposited with the University of Iowa Honors Program and 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.

Sport and recreation management, or therapeutic recreation: in order to graduate with honors in either major, students must successfully complete SRM:4194 Honors Readings and SRM:4195 Honors Problems, or TR:4194 Honors Readings and TR:4195 Honors Problems, in which they conduct a reading or research project under the supervision of a faculty member in their major and write a paper summarizing the project’s results.

Departmental honors students must be members of the University of Iowa Honors Program, which requires students to maintain a cumulative University of Iowa g.p.a. of at least 3.33 and to fulfill other requirements; visit Honors at Iowa to learn about the University’s honors program.

Minor: Human Physiology

The minor in human physiology requires a minimum of 15 s.h. in Department of Health and Human Physiology courses, including 12 s.h. in courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Transfer credit does not count toward the minor.

Students majoring in health and human physiology (B.A.), human physiology (B.S.), or athletic training (B.S.) may not earn the minor in human physiology.

Students choose courses for the minor from the following list. Enrollment in HHP:3510 Advanced Human Physiology Laboratory and HHP:4220 Biomechanics of Human Motion requires special permission. Some of these courses have prerequisites; students must complete all of a course’s prerequisites before they may register for the course.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HHP:1110 Human Anatomy</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:1110 Human Anatomy Laboratory</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>HHP:1310 Human Physiology Laboratory</td>
<td>1 s.h.</td>
</tr>
<tr>
<td>HHP:3110 Advanced Anatomy Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:3300 Human Growth and Motor</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>Development</td>
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</tr>
<tr>
<td>HHP:3400 Applied Exercise Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:3450 Immunology in Health and Disease</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

HHP:3500 Human Physiology 3 s.h.
HHP:3510 Advanced Human Physiology Laboratory 3 s.h.
HHP:3900 Writing for Health and Human Physiology 3 s.h.
HHP:4130 Skeletal Muscle Physiology 3 s.h.
HHP:4150 Clinical Exercise Physiology 3 s.h.
HHP:4220 Biomechanics of Human Motion 3 s.h.
HHP:4230 Motor Learning: Theory and Application 3 s.h.
HHP:4250 Human Pathophysiology 3 s.h.
HHP:4300 Neural Control of Posture and Movement 3 s.h.
HHP:4410 Exercise Physiology 3 s.h.
HHP:4440 Physiology of Nutrition 3 s.h.
HHP:4450 Genetic Basis of Disease 3 s.h.
HHP:4460 Cardiovascular Physiology 3 s.h.
HHP:4470 Physiology of Aging 3 s.h.
HHP:4480 Introduction to Human Pharmacology 3 s.h.
HHP:4510 Energy Metabolism in Health and Disease 3 s.h.

Minor: Physical Activity and Nutrition Science

The minor in physical activity and nutrition science requires a minimum of 15 s.h. in Department of Health and Human Physiology courses, including at least 9 s.h. in courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. Transfer credit does not count toward the minor.

Students majoring in health and human physiology (B.A.), human physiology (B.S.), or athletic training (B.S.) may not earn the minor in physical activity and nutrition science.

The minor in physical activity and nutrition science is designed in conjunction with the Obesity Research and Education initiative. The minor provides a specialized group of courses that unify concepts underlying the causes, consequences, treatment, and prevention of obesity, with attention to physical activity, nutrition, physiology, psychology, and human disease. Students who earn the minor will be prepared to apply their knowledge in areas such as clinical health professions, public health policy, personal coaching and fitness, health psychology, and health promotion.

For the minor, students complete three core courses plus two elective courses that focus on various facets of obesity and on its treatment and prevention. One of the core courses and both of the elective courses are at the intermediate or advanced level. Students choose electives in consultation with an undergraduate advisor. Some courses for the minor have prerequisites; students must complete all of a course’s prerequisites before they may register for the course.

The minor in physical activity and nutrition science requires the following course work.

Core courses—all of these:
Health and Human Physiology

HHP:2200 Physical Activity and Health 3 s.h.
HHP:2310 Nutrition and Health 3 s.h.
HHP:3050 Obesity: Causes, Consequences, Prevention, and Treatment 3 s.h.

Electives—two courses from the following lists:

HHP:3000 Equity Issues in the Health Sciences 3 s.h.
HHP:3030 Coaching for Health and Wellness 3 s.h.
HHP:3440 Physical Activity and Healthy Communities 3 s.h.
HHP:3500 Human Physiology 3 s.h.
HHP:3650 Advanced Sport and Exercise Psychology 3 s.h.
HHP:3655 Emotional and Psychological Aspects of Health 3 s.h.
HHP:4230 Motor Learning: Theory and Application 3 s.h.
HHP:4310 Sport and Exercise Nutrition 3 s.h.
HHP:4320 Nutrition Interventions 3 s.h.
HHP:4340 Global Health and Global Food 3 s.h.
HHP:4390 Understanding Human Disease 3 s.h.
HHP:4440 Physiology of Nutrition 3 s.h.

Electives may include one of these:

HHP:3400 Applied Exercise Physiology 3 s.h.
HHP:4410 Exercise Physiology 3 s.h.

Minor: Sport and Recreation Management

The minor in sport and recreation management requires a minimum of 15 s.h. in Department of Health and Human Physiology courses, including at least 12 s.h. in courses numbered 3000 or above. Students must maintain a g.p.a. of at least 2.00 in all courses for the minor and in all UI courses for the minor. Course work in the minor may not be taken pass/nonpass. A maximum of 3 s.h. of transfer credit may be accepted toward the minor with the approval of the sport and recreation management steering committee.

Students majoring in sport and recreation management (B.S.) may not earn the minor in sport and recreation management.

Students take 15 s.h., with at least 12 s.h. in course work numbered 3000 or above, from the following:

SRM:1060 Contemporary Issues in Sports 3 s.h.
SRM:2065 The Experience Economy 3 s.h.
SRM:3147 Sport Event Management 3 s.h.
SRM:3150 Recreation Administration 3 s.h.
SRM:3151 Liability in Sport and Recreation Management 3 s.h.
SRM:3152 Sport and Recreation Facility Management 3 s.h.
SRM:3153 Sport Business Practices 3 s.h.
SRM:3154 Foundations of Event Management 3 s.h.
SRM:3156 Design of Recreation Facilities 3 s.h.
SRM:3157 Managerial Operations in Sport and Recreation 3 s.h.
SRM:3158 Sport and Recreation Promotion 3 s.h.
SRM:3172 Finance in Sport and Recreation 3 s.h.
SRM:3175 Sales in Sport 3 s.h.

Graduate Programs of Study

Certificate in Disability Studies

The Department of Health and Human Physiology administers the undergraduate certificate program in disability studies; see Disability Studies in the Catalog.

Master of Arts

The Master of Arts program in leisure studies requires a minimum of 33 s.h. of graduate credit with thesis or 36 s.h. of graduate credit without thesis. Students choose one of two specialization areas—leisure and recreational sport management or therapeutic recreation—and must satisfy the prerequisites required for their areas. Work for each specialization area includes core requirements and area courses.

Leisure and Recreational Sport Management Specialization

The leisure and recreational sport management specialization prepares students for positions in public and private recreation and sport management. Students typically find employment in community or municipal recreation programs, campus recreation programs, or commercial recreation and sport operations.

LEISURE AND RECREATIONAL SPORT MANAGEMENT: CORE

All of these:

SRM:5065 The Economy of Experience 3 s.h.
TR:5200 Historical and Philosophical Perspectives on Leisure 3 s.h.
PSQF:4143 Introduction to Statistical Methods 3 s.h.

LEISURE AND RECREATIONAL SPORT MANAGEMENT: AREA COURSES

All of these:

SRM:6251 Risk Management 3 s.h.
SRM:6252 Economics and Financing 3 s.h.
SRM:6253 Sport Administration 3 s.h.
SRM:6254 Marketing and Sport Promotion 3 s.h.
Cognate area courses (sport and athletic administration, business, communications, or cultural studies) 6-9 s.h.

Students take an additional 6 s.h. of electives.
Therapeutic Recreation Specialization

The therapeutic recreation specialization prepares students to meet the challenges of inpatient- and community-based health care service delivery. The program stresses research and practical skills that enable graduates to find the best jobs in the field.

Therapeutic recreation specialists are increasingly called upon to deliver preventive outpatient services, such as programs designed to prevent secondary impairments in persons with disabilities (e.g., arthritis exercise to manage pain, fall prevention for older adults); education for individuals with negative lifestyle habits (e.g., smoking, substance abuse); programs designed to restore meaning and purpose to life following traumatic events (e.g., following a spinal cord injury); and initiatives to help communities make services accessible to persons with disabilities.

Iowa’s therapeutic recreation program emphasizes skills for delivery of services in clinical or community settings. The program includes related cognate areas, such as child life, aging, developmental disabilities, or counseling.

Students acquire research skills that they may apply directly to therapeutic recreation practice, for example, to assess the effectiveness of specific interventions or the demand for varied services in a specific setting.

The therapeutic recreation specialization requires the following course work.

**THERAPEUTIC RECREATION: CORE**

All of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR:5200</td>
<td>Historical and Philosophical Perspectives on Leisure</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TR:5205</td>
<td>Research Methods and Leisure Behavior</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>PSQF:4143</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**THERAPEUTIC RECREATION: AREA COURSES**

All of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TR:3160</td>
<td>Introduction to Therapeutic Recreation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TR:3161</td>
<td>Assessment and Evaluation in Therapeutic Recreation</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TR:3162</td>
<td>Therapeutic Recreation: Clientele</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TR:3163</td>
<td>Concepts and Issues in Therapeutic Recreation: Advancement of the Profession</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>TR:3164</td>
<td>Therapeutic Recreation: Rehabilitation</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

Cognate area courses (aging studies, child life, counseling, disability studies) 9-12 s.h.

Thesis students complete an additional 6 s.h. of credit.

Therapeutic recreation students must complete a practicum, HHP:7290 Graduate Internship, in order to sit for a national certification examination.

**Master of Science**

The Master of Science program in health and human physiology requires 30-32 s.h. of graduate credit. Required credit varies by track: the athletic training track requires a minimum of 30 s.h. and is offered without thesis; the child life track requires a minimum of 36 s.h. and is offered without thesis; the clinical exercise physiology track requires a minimum of 32 s.h. and is offered without thesis; the health and human physiology track requires a minimum of 30 s.h. and is offered with thesis.

Students interested in pursuing a Ph.D. after earning a master’s degree should choose the M.S. health and human physiology track (with thesis).

**Athletic Training Track**

The athletic training track provides an advanced clinical education and research area of study for certified athletic trainers. It focuses on a health care team approach to sports medicine, medical care management, wellness, pediatric/adolescent health, and special health populations. The program emphasizes application of established research findings to the wide variety of problems encountered in everyday practice.

In order to be admitted to the program, athletic trainers must have completed the following prerequisite course work and must hold the following certifications.

- anatomy (3-4 s.h.);
- human physiology (3 s.h.);
- athletic training core—prevention (3 s.h.), evaluation and recognition (3 s.h.), modalities (3 s.h.), rehabilitation (3 s.h.), administrative (2 s.h.);
- exercise science core—exercise physiology (3 s.h.), biomechanics (3 s.h.);
- current emergency certification; and
- Board of Certification (BOC) certification and state license.

The Master of Science with the athletic training track requires the following course work.

**STATISTICS CORE**

One of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS:5110</td>
<td>Introduction to Biostatistics</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>STAT:4143</td>
<td>Introduction to Statistical Methods</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>

**EXERCISE SCIENCE CORE**

Three of these:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HHP:3110</td>
<td>Advanced Anatomy Laboratory</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:4130</td>
<td>Skeletal Muscle Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:4150</td>
<td>Clinical Exercise Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:4220</td>
<td>Biomechanics of Human Motion</td>
<td>3 s.h.</td>
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<tr>
<td>HHP:4300</td>
<td>Neural Control of Posture and Movement</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:4310</td>
<td>Sport and Exercise Nutrition</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:4410</td>
<td>Exercise Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:4440</td>
<td>Physiology of Nutrition</td>
<td>3 s.h.</td>
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<tr>
<td>HHP:4450</td>
<td>Genetic Basis of Disease</td>
<td>3 s.h.</td>
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<tr>
<td>HHP:4460</td>
<td>Cardiovascular Physiology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:4470</td>
<td>Physiology of Aging</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:4480</td>
<td>Introduction to Human Pharmacology</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:6130</td>
<td>Advanced Skeletal Muscle Physiology</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>HHP:6150</td>
<td>Advanced Clinical Exercise Physiology</td>
<td>1-3 s.h.</td>
</tr>
<tr>
<td>HHP:6210</td>
<td>Epidemiology of Physical Activity</td>
<td>3 s.h.</td>
</tr>
<tr>
<td>HHP:6410</td>
<td>Advanced Exercise Physiology</td>
<td>3 s.h.</td>
</tr>
</tbody>
</table>
HHP:6460 Advanced Cardiovascular Physiology 1-3 s.h.
HHP:6480 Advanced Human Pharmacology 3 s.h.
HHP:7300 Advanced Neural Control of Posture and Movement 1-3 s.h.

CLINICAL RESEARCH TOOLS
One approved clinical tool course (2-4 s.h.) in computer science, counseling, epidemiology, health promotion, leisure studies, nursing, or pathology.

ATHLETIC TRAINING CORE
All of these:
HHP:5000 Problems 2 s.h.
HHP:6010 Non-Thesis Seminar 2 s.h.
HHP:7000 Practicum in College Teaching 2-3 s.h.
One of these:
EPID:4400 Epidemiology I: Principles 3 s.h.
PATH:8133 Introduction to Human Pathology for Graduate Students 4 s.h.
PSQF:6205 Design of Instruction 3 s.h.

ELECTIVES
Students choose elective courses that enhance their concentration in medical care management, wellness, pediatric/adolescent health, or special health populations. Course selection must be approved by the advisor.

Child Life Track
The child life track provides expertise in child development through services to support families and to promote children's mastery of life experiences, particularly children's health care events. Professionals in this area enhance effective coping skills through play, education, communication, and family-centered care. The program prepares students to meet credentialing requirements. For more information about the profession, visit the Child Life Council.

In order to be admitted to the program, students must:
hold a B.S. or B.A. with a g.p.a. of at least 3.00;
have completed one course each in human anatomy, medical terminology, and growth and development;
have verification of 100 hours of paid or volunteer experience in child life or in a pediatric setting; and
three letters of recommendation, with at least one from a credentialed child life specialist.

Students who have not completed an introductory course in child life must enroll in TR:1077 Introduction to Child Life during their first semester. For student applicants whose first language is not English, applications must be accompanied by Test of English as a Foreign Language (TOEFL) scores.

The Master of Science with the clinical exercise physiology track requires the following course work.

Clinical Exercise Physiology Track
The clinical exercise physiology track provides an advanced scientific and clinical education. It prepares students to be allied health professionals who work in the application of physical activity and behavioral interventions for clinical diseases and health conditions including cardiovascular, pulmonary, metabolic, orthopaedic, neuromuscular, immunologic, and hematologic diseases.

In order to be admitted to the program, students must:
hold a B.S. or B.A. with a g.p.a. of at least 3.00; and
have completed anatomy and physiology with laboratories (8 s.h.).

The Master of Science with the clinical exercise physiology track requires the following course work.

STATISTICS CORE
One of these (or equivalent):
BIOS:5110 Introduction to Biostatistics 3 s.h.
STAT:3510 Biostatistics 3 s.h.
STAT:4143 Introduction to Statistical Methods 3 s.h.

ADVANCED STATISTICS
One of these (or equivalent):
BIOS:5120 Design and Analysis of Biomedical Studies 3 s.h.
STAT:6513 Intermediate Statistical Methods 4 s.h.

CLINICAL EXERCISE PHYSIOLOGY CORE
All of these:
HHP:6150 Advanced Clinical Exercise 1-3 s.h.
HHP:6200 Advanced Metabolic Exercise Testing and Prescription 3 s.h.
HHP:6410 Advanced Exercise Physiology 3 s.h.
HHP:6460 Advanced Cardiovascular Physiology 1-3 s.h.
HHP:6480 Advanced Human Pharmacology 3 s.h.

Two enrollments (1 s.h. each) chosen from these:
HHP:6300 Seminar in Motor Control 1 s.h.
HHP:6400 Integrative Physiology Seminar 1 s.h.
HHP:6500 Seminar in Health Promotion 1 s.h.

**INTERNSHIP**
Students complete an individually arranged internship, usually during their second year, earning 3 s.h. of credit.

**ELECTIVES**
Students choose elective courses that enhance their concentration in human and exercise physiology, clinical exercise physiology, prescriptive exercise and training for health and fitness, health maintenance, and understanding human disease. Students complete a minimum of two courses from the following list, with their advisor’s approval.

HHP:4400 Health Promotion Clinical Practicum 1 s.h.
HHP:4405 Health Promotion Community and Worksite Practicum 1 s.h.
HHP:4420 Planning and Evaluating Health Interventions 3 s.h.
HHP:6050 Advanced Topics in Obesity 3 s.h.
HHP:6130 Advanced Skeletal Muscle Physiology 1-3 s.h.
HHP:6210 Epidemiology of Physical Activity 3 s.h.
HHP:6470 Advanced Physiology of Aging 3 s.h.
HHP:7300 Advanced Neural Control of Posture and Movement 1-3 s.h.

ACB:5203 Gross Human Anatomy for Graduate Students 5 s.h.
BIOL:3743 Basic Biology of Human Disease 2 s.h.
EPID:6350 Nutritional Epidemiology 2 s.h.
EPID:6650 Cardiovascular Disease Epidemiology 3 s.h.
EPID:6360 Nutrition Intervention in Clinical Trials Research 2 s.h.
PSY:3010 Health Psychology 3 s.h.
PSY:3340 Behavior Modification 3 s.h.
PTRS:6224 Activity-Based Neural and Musculoskeletal Plasticity in Health Care 4 s.h.
PTRS:7812 Biomedical Instrumentation and Measurement 3 s.h.
PTRS:7875 Analysis of Activity-Based Neural and Musculoskeletal Plasticity 3 s.h.

**Health and Human Physiology Track**
The health and human physiology track requires a thesis. Students who intend to earn a Ph.D. after the master’s degree should choose this track. In order to be admitted to the program, students must:

- hold a B.S. or B.A. with a g.p.a. of at least 3.00; and
- have completed courses in anatomy and physiology with laboratory (8 s.h.) and basic physics (3 s.h.).

The Master of Science with the health and human physiology track requires the following course work.

**ADVANCED STATISTICS**
One of these:
BIOS:5120 Design and Analysis of Biomedical Studies 3 s.h.

EPID:5241 Statistical Methods in Epidemiology 4 s.h.
STAT:6513 Intermediate Statistical Methods 4 s.h.

**RESEARCH METHODS**
One of these:
TR:5205 Research Methods and Leisure Behavior 3 s.h.
EALL:5150 Introduction to Educational Research 3 s.h.
PSQF:6220 Quantitative Educational Research Methodologies 3 s.h.

**SEMINAR COURSES**
Two enrollments (1 s.h. each) chosen from these:
HHP:6300 Seminar in Motor Control 1 s.h.
HHP:6400 Integrative Physiology Seminar 1 s.h.
HHP:6500 Seminar in Health Promotion 1 s.h.

**ELECTIVES**
Students choose elective courses that broaden their knowledge in health and human physiology and related disciplines and that enhance their knowledge in their specific areas of interest. Students choose electives with guidance from their advisor/mentor. Electives may include the following:

HHP:5000 Problems arr.
HHP:6000 Research arr.
HHP:6050 Advanced Topics in Obesity 3 s.h.
HHP:6130 Advanced Skeletal Muscle Physiology 1-3 s.h.
HHP:6150 Advanced Clinical Exercise Physiology 1-3 s.h.
HHP:6200 Advanced Metabolic Exercise Testing and Prescription 3 s.h.
HHP:6210 Epidemiology of Physical Activity 3 s.h.
HHP:6410 Advanced Exercise Physiology 3 s.h.
HHP:6460 Advanced Cardiovascular Physiology 1-3 s.h.
HHP:6470 Advanced Physiology of Aging 3 s.h.
HHP:6480 Advanced Human Pharmacology 3 s.h.
HHP:7300 Advanced Neural Control of Posture and Movement 1-3 s.h.

ACB:5203 Gross Human Anatomy for Graduate Students 5 s.h.
BIOC:3110 Biochemistry 3 s.h.
EPID:4400 Epidemiology I: Principles 3 s.h.
EPID:6350 Nutritional Epidemiology 2 s.h.
EPID:6400 Epidemiology II: Advanced Methods 4 s.h.
EPID:6600 Epidemiology of Chronic Diseases 3 s.h.
MPB:5153 Graduate Physiology 4 s.h.
PTRS:7812 Biomedical Instrumentation and Measurement 3 s.h.
PTRS:7875 Analysis of Activity-Based Neural and Musculoskeletal Plasticity 3 s.h.

**THESIS**
Both of these:
Doctor of Philosophy

The Doctor of Philosophy program in health and human physiology requires a minimum of 72 s.h. of graduate credit.

Doctoral students should have a strong background in the natural sciences and/or health promotion, and a working knowledge of statistics and research methodology. Students may acquire additional knowledge of statistics and research methodology after entering the program.

All Ph.D. students complete a common core of courses, elective courses, and 10 s.h. of independent research in addition to the 12 s.h. dissertation requirement. They must complete a dissertation in their specialization area.

Some courses in the program are offered by other departments. Faculty members from those departments frequently serve on comprehensive examination committees and on dissertation committees for the initial presentation of a candidate’s prospectus. They also participate in the final examination.

The Doctor of Philosophy requires the following course work.

COMMON CORE
All of these:
- HHP:6000 Research 10 s.h.
- HHP:7000 Practicum in College Teaching (only required for non-TA students) 2 s.h.
- HHP:7900 Thesis: Ph.D. 12 s.h.
- GRAD:7270 Principles of Scholarly Integrity (requires four semesters to complete) 1 s.h.

ADVANCED STATISTICS
Two enrollments, such as the following. Students should consult with their advisor.
- BIOS:5120 Design and Analysis of Biomedical Studies 3 s.h.
- STAT:6513 Intermediate Statistical Methods 4 s.h.

SEMINAR COURSES
Four enrollments chosen from these:
- HHP:6300 Seminar in Motor Control 1 s.h.
- HHP:6400 Integrative Physiology Seminar 1 s.h.
- HHP:6500 Seminar in Health Promotion 1 s.h.

ELECTIVES
Students are expected to obtain broad-based knowledge in their specialization area. This normally entails approximately 30 s.h. of course work. Students choose specialization electives with guidance from their advisor/mentor. Electives may include the following.
- HHP:6200 Advanced Metabolic Exercise Testing and Prescription 3 s.h.
- HHP:6210 Epidemiology of Physical Activity 3 s.h.
- ACB:5203 Gross Human Anatomy for Graduate Students 5 s.h.
- ACB:8114 Medical Neuroscience 4 s.h.
- BIOC:3110 Biochemistry 3 s.h.
- BIOC:3120 Biochemistry and Molecular Biology I 3 s.h.
- BIOC:3130 Biochemistry and Molecular Biology II 3 s.h.
- EPID:4400 Epidemiology I: Principles 3 s.h.
- EPID:5241 Statistical Methods in Epidemiology 4 s.h.
- EPID:6350 Nutritional Epidemiology 2 s.h.
- EPID:6400 Epidemiology II: Advanced Methods 4 s.h.
- FRRB:7000 Redox Biology and Medicine 4 s.h.
- MPB:5153 Graduate Physiology 4 s.h.
- NSCI:3453 Neurophysiology 3-4 s.h.
- NSCI:4753 Developmental Neurobiology 3 s.h.
- NSCI:7235 Neurobiology of Disease 3 s.h.
- OEH:4310 Occupational Ergonomics I 2-3 s.h.
- OEH:6310 Clinical Ergonomics 3 s.h.
- OEH:6320 Occupational Ergonomics II 3 s.h.
- PSY:5210 Fundamentals of Behavioral Neuroscience 4 s.h.
- PTRS:5210 Kinesiology and Pathomechanics 4 s.h.
- PTRS:6224 Activity-Based Neural and Musculoskeletal Plasticity in Health Care 4 s.h.
- PTRS:7812 Biomedical Instrumentation and Measurement 3 s.h.
- PTRS:7875 Analysis of Activity-Based Neural and Musculoskeletal Plasticity 3 s.h.
- PTRS:7885 Biomechanical Analysis in Rehabilitation 3 s.h.

DISSERTATION
Students working on a dissertation register for the following course.


Admission

Admission to the department’s graduate programs is based on grade-point average and score on the Graduate Record Examination (GRE) General Test. Applicants to the M.S. program must have an undergraduate g.p.a. of at least 3.00. Applicants to the Ph.D. program must have a g.p.a. of at least 3.00 on undergraduate work and previous graduate work.

Applicants must meet the admission requirements of the Graduate College; see the Manual of Rules and Regulations of the Graduate College.

Application deadline is February 1 for admission the following fall semester.

Facilities

Classroom and research laboratories are located in the Field House and in other buildings on campus. They provide excellent facilities for instruction and research at both the undergraduate and graduate levels.

Cooperative efforts with other units facilitate specialization by allowing health and human physiology students to use additional special facilities and research equipment in other departments on campus (e.g., biology, biochemistry, molecular physiology and biophysics, orthopaedic surgery,
Courses

Lower-Level Undergraduate

Athletic Training Program

ATEP:1000 First Aid and CPR 2 s.h.
American Red Cross certification: basic first aid, CPR procedures.

ATEP:1010 Exploring Athletic Training arr.
Exploration of professional preparation for athletic trainers; application, career opportunities, professional organizations, awareness of basic athletic training principles.

ATEP:2010 Practicum in Athletic Training I 2 s.h.
Basic clinical skill instruction, evaluation, and integration for athletic trainers. Requirements: athletic training major.

ATEP:2020 Practicum in Athletic Training II 2 s.h.
Integration of basic physical skills and orientation to traditional settings; clinical experience for first-year students arranged through the athletic training program. Requirements: grade of C or higher in ATEP:2010.

ATEP:2030 Basic Athletic Training 3 s.h.
Basic pathology, epidemiology, materials biology for prevention and immediate care of athletic injuries.

ATEP:2040 Clinical Sciences I 2 s.h.
Theoretical knowledge base in therapeutic modalities. Offered spring semesters. Requirements: grade of C or higher in ATEP:2010.

ATEP:2060 Advanced Emergency Care for Athletes 1-2 s.h.
Coordinated initial professional emergency response certifications for athletic trainers; recertification for those holding valid certifications. Requirements: Red Cross First Aid and CPR certifications.

Health and Human Physiology

HHP:1000 First-Year Seminar 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, performances, readings, visits to research facilities). Requirements: first- or second-semester standing.

HHP:1030 Introduction to Critical Thinking 3 s.h.
Concepts and skills required for critical thinking about what should and should not be taken as true; analysis and evaluation of a variety of complex extended arguments. GE: Quantitative or Formal Reasoning.

HHP:1050 Exploring Exercise Science 1 s.h.
Introduction to field of exercise science; employment and observation opportunities, academic and professional development.

HHP:1051 Making Choices: Interdisciplinary Perspectives 3 s.h.
Interdisciplinary consideration of what we know, value, hope, and should do; focus on case studies of private, professional, and social decision making. GE: Values, Society, and Diversity.

HHP:1100 Human Anatomy 3 s.h.
General human anatomy covering most systems of the body. GE: Natural Sciences without Lab.

HHP:1110 Human Anatomy Laboratory 1 s.h.
All major systems of the human body, understood through computer-generated images, models, histological slides, anatomical specimens. GE: Natural Sciences Lab only.

HHP:1300 Fundamentals of Human Physiology 3 s.h.
Introduction to function and regulation of the human body. Recommendations: high school chemistry and basic biology. GE: Natural Sciences without Lab.

HHP:1310 Human Physiology Laboratory 1 s.h.
Introductory laboratory course illustrating principles of human physiology through fundamental experimental measurements and computer simulation. Recommendations: one semester of biology.

HHP:2130 Human Development Through the Life Span 3 s.h.
Overview of human developmental theories across the life-span; aspects of cognitive, physical, and personality development from birth to death; the role of culture, environment, health, and economic factors over the developmental process and life continuum.

HHP:2200 Physical Activity and Health 3 s.h.
Physical activity determinants in society; school, workplace, community-based health promotion interventions to improve activity levels. GE: Values, Society, and Diversity.

HHP:2210 Principles of Exercise Leadership 3 s.h.
Exercise standards, guidelines for aerobic/exercise instructors; aerobic workout components, contraindicated exercises, injury prevention and treatment. Prerequisites: HHP:2200.

HHP:2310 Nutrition and Health 3 s.h.
Physiology, biochemistry of human nutrition; appropriate food sources; qualitative and quantitative evaluation of diets using standard references. GE: Natural Sciences without Lab.

HHP:2350 Biomechanics of Sport and Physical Activity 3 s.h.
Principles of biomechanics, kinesiology, and anatomy; quantitative aspects of sport and physical activity; emphasis on developing a qualitative grasp on mechanical principles of human movement within sports and physical activity; how to apply these principles in a sport/exercise environment. Prerequisites: HHP:1100.

HHP:2500 Psychological Aspects of Sport and Physical Activity 3 s.h.
Psychological theory and research related to sport and physical activity; motivation, aggression, attribution, socialization, competitive anxiety, leadership.

**Sport and Recreation Management**

**SRM:1000 First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, readings, visits to research facilities).

**SRM:1040 The Good Society** 3 s.h.
Critiques of the existing social order, articulation of models of a good society with associated conceptions of the good life. GE: Values, Society, and Diversity.

**SRM:1045 Health for Living** 3 s.h.
Personal health strategies; focus on disease prevention, wellness. GE: Values, Society, and Diversity.

**SRM:1060 Contemporary Issues in Sports** 3 s.h.
Basic philosophical, historical, scientific foundations and developments; function, settings of organized recreation.

**SRM:1072 Leisure and the Liberal Arts** 3 s.h.
Integration of the ideal of a liberal education with worthy, meaningful use of free time in contemporary society; classic writings in the humanities. GE: Values, Society, and Diversity.

**SRM:2065 The Experience Economy** 3 s.h.
Introduction to emerging experience economy; just as manufacturing sector of economy supersedes agriculture and service economy supersedes manufacturing, how experience economy is now gaining ascendancy as the last, best hope for future economic growth; critical analysis of experience economy with discussion of ways in which experience economy may offer green, moral, and humane alternatives to previous stages of economic development; new opportunities for travel and tourism, sports settings, recreation and wellness services, possible applications in education and helping professions.

**Therapeutic Recreation**

**TR:1000 First-Year Seminar** 1 s.h.
Small discussion class taught by a faculty member; topics chosen by instructor; may include outside activities (e.g., films, lectures, readings, visits to research facilities).

**TR:1061 Recreation Leadership and Programming** 3 s.h.
Leadership principles, techniques; programming techniques.

**TR:1070 Perspectives on Leisure and Play** 3 s.h.
Relationships between leisure and economics, sociology, other social sciences; effect of leisure on individual and group behavior; antecedents, motives, consequences of leisure behavior. GE: Social Sciences.

**TR:1077 Introduction to Child Life** 3 s.h.
Orientation to the field of child life services including services for hospitalized children and their families.

**TR:1800 Basic Aspects of Aging** 3 s.h.

**Upper-Level Undergraduate and Graduate**

**Athletic Training Program**

**ATEP:3010 Clinical Sciences III** 3 s.h.
Theoretical and practical skill development in the areas of musculoskeletal evaluation for ankle, knee, shoulder, and upper extremity. Offered fall semesters. Prerequisites: ATEP:2040. Requirements: athletic training major.

**ATEP:3020 Clinical Sciences V: Rehabilitation** 2 s.h.
Rehabilitation for athletic trainers based on the theory and principles of therapeutic exercise; application of current research concepts. Prerequisites: ATEP:2040. Corequisites: ATEP:3010. Requirements: athletic training major.

**ATEP:3030 Practicum in Athletic Training III** 3 s.h.

**ATEP:3040 Clinical Sciences IV** 3 s.h.
Continuation of musculoskeletal evaluation, completion of EENT, chest, abdomen, and dermatologic evaluation; integration of rehabilitation programs. Offered spring semesters. Requirements: grade of C or higher in ATEP:3010.

**ATEP:4010 Administration of Athletic Training Programs** 2 s.h.
Health care supervision, professional athletic training responsibilities, philosophies in athletic health care. Offered fall semesters. Prerequisites: ATEP:2030.

**Health and Human Physiology**

**HHP:3000 Equity Issues in the Health Sciences** 3 s.h.
Examination of equity issues in the health sciences, including a review of the historical challenges that led to Human Subjects Review Boards, FDA oversight of drug development and clinical trials, inclusion of women in research; effect of situational ethics in the workplace; potential danger of making assumptions about clients/patients; importance of developing an inclusive communication style; assessing the effectiveness of family-friendly employment policies in providing equitable opportunities for career advancement for both women and men. Recommendations: junior or senior standing. Same as INTD:3020.

**HHP:3020 Nutrition for Health, Fitness, and Sport** 3 s.h.
Effects of exercise and nutrition on health- and sports-related fitness; for professionals in health and physical education. Same as INTD:3027.
HHP:3030 Coaching for Health and Wellness 3 s.h.
Opportunities to expand knowledge and develop skills to help individuals change behavior and meet health-related goals; general health and wellness principles; principles and techniques for change; experience providing health-coaching services to clients. Prerequisites: HHP:2200 and HHP:2310. Same as INTD:3030.

HHP:3050 Obesity: Causes, Consequences, Prevention, and Treatment 3 s.h.
In-depth overview of biological, behavioral, and societal causes and consequences of obesity epidemic; potential solutions from primary and secondary prevention standpoints; causes of obesity, available treatments, and global impact that obesity epidemic presents to society. Prerequisites: HHP:2200 and HHP:2310.

HHP:3060 Advanced Human Anatomy for Athletic Trainers 4 s.h.
Extremities and relevant body cavity anatomy; anatomical terminology, anatomical relationships of human body, 3-D view of anatomy, clinical relevance of anatomy; basic science lectures, radiologic imaging discussions, introduction to clinically relevant anatomy, dissection laboratories, small group learning and teaching, faculty interaction, and computer-assisted resources. Offered summer sessions. Prerequisites: HHP:1100.

HHP:3100 Health Literacy 3 s.h.
Community and clinical issues related to health literacy; focus on understanding individual and systemic factors that influence health literacy, including education, context, culture, and health care systems. Prerequisites: HHP:2200 and HHP:2310.

HHP:3110 Advanced Anatomy Laboratory 3 s.h.
Detailed gross anatomy of all major systems of the body; structure of the human body at organ, tissue, and cellular levels; examination of various human and other mammalian specimens. Prerequisites: HHP:1100 and HHP:1110.

HHP:3148 Introduction to Personal Training 3 s.h.
Basics of personal training, including establishing a personal training business, screening, and assessing clients; current issues and certifications.

HHP:3200 Health Behavior and Health Promotion 3 s.h.
Principles of epidemiology and health behavior theories applied to multilevel frameworks for health promotion. Prerequisites: HHP:2200 and HHP:2310.

HHP:3300 Human Growth and Motor Development 3 s.h.
Human growth and biological maturation; focus on motor development from birth through puberty. Offered fall semesters. Recommendations: prior course in anatomy, human physiology, or biology.

HHP:3400 Applied Exercise Physiology 3 s.h.
Effects of acute exercise and chronic exercise training on different physiological systems (energy, neuromuscular, circulatory, respiratory, endocrine); overview of physiological principles necessary for more advanced study of fitness evaluation and exercise prescription; preparation for ACSM certification. Prerequisites: HHP:1300 or HHP:3500. Recommendations: at least one prior human physiology course.

HHP:3420 College Health Education 3 s.h.
Practical experience in planning, implementing, and evaluating health programs in the college health setting; how health issues apply to individuals and communities to which they belong; foundation of health behavior change in college setting. Prerequisites: HHP:2200 and HHP:2310.

HHP:3430 Community and Worksite Health Promotion 3 s.h.
Management and organizational theories; assessment, planning, implementation, and evaluation of clinical and work-setting (targeted) health promotion programs. Prerequisites: HHP:2200 and HHP:2310.

HHP:3440 Physical Activity and Healthy Communities 3 s.h.
Development, implementation, evaluation of effective health communication interventions; identification of health education resources for targeted groups. Prerequisites: HHP:2200 and HHP:2310.

HHP:3450 Immunology in Health and Disease 3 s.h.
Overview of immunology, beginning at the molecular level and ending with the role of the immune system in disease; fundamental concepts of the immune system; innate and adaptive immunity, focusing on cell-mediated and humoral immune responses, in addition to effector mechanisms in both of these responses; concepts of immunologic tolerance; autoimmune disease; immunodeficiency syndromes; the inflammatory process in disease. Prerequisites: HHP:3500.

HHP:3500 Human Physiology 3 s.h.
Organ system approach to physiology; focus on normal function of human body; information on all levels of integration from submolecular to whole organism; emphasis on how intact organism functions. Prerequisites: (HHP:1300 or BIOL:1141 or BIOL:1140 or BIOL:1411) and (CHEM:1070 or CHEM:1110).

HHP:3510 Advanced Human Physiology Laboratory 3 s.h.
Fundamental laboratory measurements; major physiological systems, experimental design, presentation of experimental data. Corequisites: HHP:3500, if not taken as a prerequisite.

HHP:3650 Advanced Sport and Exercise Psychology 3 s.h.
Application of sport and exercise psychological theory; theoretical and practical experience using psychological skills training for sport and exercise. Prerequisites: HHP:2500.

HHP:3655 Emotional and Psychological Aspects of Health 3 s.h.
Interfaces among emotional, psychological, and physical aspects of health; examination of how individuals with healthy psychological profiles engage in health behaviors; health-related implications of negative emotional and psychological states; strategies for promoting healthy psychological patterns; designed for health promotion, health studies students, and others interested in health-related careers. Prerequisites: HHP:2200.

HHP:3850 Promoting Health Globally 3 s.h.
Major global health threats in the United States and abroad; impact of culture, history, economics on health disparities; approaches, programs, policies to remedy them. Requirements: junior or senior standing, or certificate student. Same as QHS:3850.

HHP:3860 Leadership Theory for Health and Fitness 3 s.h.
Theories and applications of current scholarship in group and individual leadership relevant for health, sport, fitness, and exercise leadership; areas of study include group dynamics, humanist leadership, leader-member exchange theory, transformational leadership, contingency/reinforcement leadership models, path-goal leadership, and multi-dimensional leadership models; approaches to leadership contextualized to build skills in cultural competence and ethics of leadership.

HHP:3870 Motivational Interviewing for Health Professions 3 s.h.
Theoretical foundations, empirical research support, and application of motivational interviewing; how people make changes with regard to health behaviors, how health professionals can support positive change, barriers to change process, empowerment and autonomy, intrinsic motivation, applications of motivational interviewing; theory and research; motivational interviewing for health behavior change; extensive applied practice of motivational interviewing techniques and group work to practice skills; discussion and application of techniques, research, and practical knowledge.

HHP:3900 Writing for Health and Human Physiology 3 s.h.
Effective written communication specific to health sciences; planning, drafting, revising, and peer-editing materials (e.g., personal statements, professional communications, general articles of interest, scientific papers); practicum experience. Requirements: HHP:3500.

HHP:4130 Skeletal Muscle Physiology 3 s.h.
Skeletal muscle structure, contractile mechanisms, production of movement, biomechanical properties; adaptation to increased use, disuse, injury. Offered spring semesters.

HHP:4150 Clinical Exercise Physiology 3 s.h.
Recent advances in exercise physiology for clinical populations; emphasis on acute and chronic responses to exercise in healthy aged adults and in patients with cardiac, vascular, pulmonary, and metabolic diseases; basic and intermediate electrocardiography (ECG), pathophysiology of disease process, clinical assessment of disease severity, diagnostic testing, acute exercise responses, and exercise rehabilitation. Prerequisites: HHP:3500 and HHP:4410. Recommendations: HHP:4460.

HHP:4190 Scientific Basis of Training for Elite Performance 3 s.h.
Application of scientific principles to goal of improving strength, speed, endurance, and overall human function; general overview of structure and function of muscular, nervous, cardiovascular, and respiratory systems; bioenergetics of exercise; endocrine response to exercise; biomechanics of resistance exercise; adaptations to anaerobic and aerobic training programs; age and sex related considerations on training; nutrition and ergogenic aids. Prerequisites: HHP:1100 and (HHP:1300 or HHP:3500).

HHP:4195 Exercise Programming for Special Populations 3 s.h.
Measurement of health-related fitness and exercise capacity in special populations (e.g., children, older adults, obesity, orthopedic problems, cerebral palsy, intellectual disabilities). Prerequisites: HHP:2200.

HHP:4200 Metabolic Exercise Testing and Prescription 3 s.h.
Basic techniques in physical fitness assessment, prescription of exercise for healthy and unhealthy adults, promotion of physical activity within communities; provides knowledge and skill competencies required for certification as American College of Sports Medicine health fitness instructor. Prerequisites: HHP:2200. Corequisites: HHP:3400 or HHP:4410. Requirements: health promotion, exercise science, or human physiology major.

HHP:4210 Musculoskeletal Exercise Testing and Prescription 3 s.h.
Educational and practical experience for designing resistance training and flexibility programs; competencies for certification with National Strength and Conditioning Association. Prerequisites: HHP:2200. Corequisites: HHP:3400 or HHP:4410 if not taken as a prerequisite. Requirements: health promotion, exercise science, or human physiology major.

HHP:4220 Biomechanics of Human Motion 3 s.h.
Application of the principles of mechanics to investigation of human motion in two dimensions; system modeling, force system and equilibrium analysis, particle and rigid body kinematics, Newton's and Euler's equations of motion, work-energy and impulse-momentum integral principles. Offered spring semesters.

HHP:4230 Motor Learning: Theory and Application 3 s.h.
How skilled motor behavior is acquired; behavioral changes that occur during skill acquisition; structural and physiological changes that occur in central nervous system; principles of training and practice that yield efficient and effective motor learning; how this information is helpful to health professionals involved in motor rehabilitation, physical educators and coaches, music instructors and musicians, strength and conditioning professionals, fitness professionals, and athletes, among others. Prerequisites: HHP:1300. Recommendations: familiarity with basic neuroscience (neurons, synaptic transmission, basic anatomical organization of sensory and motor systems).
HHP:4250 Human Pathophysiology 3 s.h. In-depth study of human pathological processes and their effects on homeostasis; etiology, symptoms, and risk factors of various diseases; emphasis on major diseases impacting worldwide disability and death; how pathological processes are manifested and progress in the body. Prerequisites: HHP:1100 and HHP:3500.

HHP:4260 Respiratory Pathophysiology 3 s.h. Structure and function of human respiratory system; focus on didactic and case study-based learning; control of breathing, gas exchange, lung mechanics, regulation of pulmonary blood flow, respiratory responses to stress; application of these physiological concepts to case studies of human disease. Prerequisites: HHP:1100 and HHP:3500. Recommendations: PHYS:1511, and MATH:1460 or MATH:1850.

HHP:4300 Neural Control of Posture and Movement 3 s.h. Neuroanatomical and neurophysiological bases of human motor control; mechanisms for locomotion and posture, control of arm and hand movements, role of sensory information. Offered spring semesters. Requirements: anatomy or human physiology course.

HHP:4310 Sport and Exercise Nutrition 3 s.h. Relationship between nutrition, fitness and sport performance; basic nutrition, physiology, chemistry, psychology, food preparation. Prerequisites: HHP:2200 and HHP:2310.

HHP:4320 Nutrition Interventions 3 s.h. Strategies that assist in assessment and evaluation of nutrition behaviors of individuals and groups; interventions to meet nutritional needs of individuals and groups with a variety of health issues. Prerequisites: HHP:2200 and HHP:2310. Requirements: admission to health promotion track.

HHP:4340 Global Health and Global Food 3 s.h. Practices, patterns, and policies that contribute to the epidemics of obesity, diabetes, and heart disease in wealthy populations; environmental degradation, hunger, and malnutrition among impoverished populations; strategies to meet food and agricultural needs for the world; local/global aspects or perspectives on food/health concerns for Iowa and the international community. Same as GHS:4340.

HHP:4350 Practicum in Personal Training 2 s.h. Opportunity to observe personal trainers in a fitness setting; participation in process of helping clients achieve health/fitness goals. Prerequisites: HHP:1100 and (HHP:1300 or HHP:3500) and HHP:2310 and (HHP:3400 or HHP:4410). Requirements: CPR/AED or Group Fitness Instructor (ACSM, ACE, AFAA) certification.

HHP:4360 Practicum in Group Fitness Instruction 2 s.h. Opportunity to observe group-fitness instructors in an applied setting; help organize and execute a group-fitness class. Prerequisites: HHP:1100 and (HHP:1300 or HHP:3500) and HHP:2310 and (HHP:3400 or HHP:4410). Requirements: CPR/AED or Group Fitness Instructor (ACSM, ACE, AFAA) or specific fitness (yoga, indoor cycling, crossfit) certification.

HHP:4370 Practicum in Strength and Conditioning 2 s.h. Opportunity to observe strength and conditioning professionals in an applied setting; participation in process of helping athletes reach performance goals. Prerequisites: HHP:1100 and (HHP:1300 or HHP:3500) and HHP:2310 and (HHP:3400 or HHP:4410). Requirements: CPR/AED certification.

HHP:4380 Understanding Human Disease 3 s.h. Introduction to process of human disease at cell, organ, and whole body level throughout the lifespan; pathophysiological changes occurring with disease, including risk factors, disease development, and overall effects of disease on the body; cancer, diabetes, obesity, cardiovascular, neurodegenerative diseases, and aging. Prerequisites: HHP:1300 or HHP:3500.

HHP:4400 Health Promotion Clinical Practicum 1 s.h. Experience in planning and implementing clinical health promotion programs focusing on nutrition, physical fitness, cardiovascular, neurodegenerative diseases, and aging. Prerequisites: HHP:1300 or HHP:3500.

HHP:4405 Health Promotion Community and Worksite Practicum 1 s.h. Planning and implementing community and worksite health promotion programs. Prerequisites: HHP:3200 and HHP:4200.

HHP:4410 Exercise Physiology 3 s.h. Mechanisms responsible for the acute and chronic effects of exercise on the different organ systems of the body. Offered fall semesters. Prerequisites: HHP:1300 or HHP:3500.

HHP:4415 Exercise Science Practicum 1 s.h. Experience in planning and implementing exercise programs related to physical fitness, including strength and conditioning in healthy and diseased/injured populations, and in elite athletes.

HHP:4420 Planning and Evaluating Health Interventions 3 s.h. Assessment, planning, implementation, and evaluation of health promotion programs. Prerequisites: HHP:3200. Requirements: admission to health promotion program.

HHP:4440 Physiology of Nutrition 3 s.h. Metabolic and biological aspects of human energy production, relationship to energy consumption; systems or integrative approach.
HHP:4450 Genetic Basis of Disease  
Changes in single molecules that lead to systemic physiological alterations in mammals; relationship of these changes to development, aging, exercise, and specific diseases; current methodologies for studying mammalian genetics and physiology. Prerequisites: HHP:3500.

HHP:4460 Cardiovascular Physiology  

HHP:4470 Physiology of Aging  
Aging's effects on cells, tissues, and organs; how aging influences function of major body organ systems and the whole organism; physiological mechanisms that underlie age-related changes in body function and performance; integrative approach with focus on human aging. Prerequisites: HHP:1100 or HHP:3500.

HHP:4480 Introduction to Human Pharmacology  
General pharmacology (e.g., administration, distribution, and elimination of drugs, dose response curves, adverse effects, placebos, homeopathy); pharmacotherapy of selected human diseases, pathophysiologic aspects of the disease, how different classes of drugs modify pathophysiologic effects to restore health or reduce disease's impact; focus on mechanisms of drug actions in humans; adverse effects, pharmacokinetic considerations, drug interactions; how to write prescriptions. Prerequisites: HHP:3500.

HHP:4490 Diagnosing Diseases: Patient History and Physical Examination  
Different diseases studied by interacting with patients at Meenakshi Mission Hospital and Research Center in Madurai, India; formal lectures in mornings followed by bedside teaching in afternoons and grand rounds in evenings; for pre-health professional students.

HHP:4500 Undergraduate Independent Study  
Library or laboratory research related to a specific topic in human physiology, normally culminating with a written manuscript; work directed by a faculty member.

HHP:4510 Energy Metabolism in Health and Disease  
Comprehensive and molecular-driven approach to energy metabolism during exercise and calorie restriction regimens in skeletal muscle, adipose tissue, liver, heart, brain; special emphasis on muscle metabolism and its interaction with other organ systems in treatment and prevention of metabolic diseases (e.g., obesity, diabetes, cardiovascular diseases, cancer). Prerequisites: HHP:3500. Recommendations: HHP:4410 and BIOL:2723.

HHP:4600 Senior Seminar in Creative Problem Solving  
Use of design thinking values and principles; collaborative work to uncover innovative solutions related to undergraduate health and human physiology experience and targeted health behaviors; interactive presentation of content, experimentation of ideas and processes, student-led projects. Requirements: senior standing, health and human physiology or human physiology major, and UI g.p.a. of 3.00 or higher.

HHP:4800 Honors Research I  
Research for honors thesis; selection of faculty mentor, preparation of research proposal, written and oral presentations of research proposal, literature review, participation in experiments designed to develop laboratory skills for research, work with an active research tenure-track faculty member in a laboratory; first of a two-semester sequence. Requirements: honors standing.

HHP:4900 Honors Research II  
Completion of honors research begun in HHP:4800; analysis of data, writing and oral presentation of honors thesis, work with an active research tenure-track faculty member in a laboratory; second of a two-semester sequence. Requirements: honors standing and grade of B or higher in HHP:4800.

HHP:4920 Health Promotion Preinternship Seminar  
Preparation for internship experience.

HHP:4930 Health Promotion Internship  
Directed practical field experience; program planning, implementation, evaluation, administrative procedures. Prerequisites: HHP:4200 and HHP:4210 and HHP:4320 and HHP:4420 and HHP:4920.

HHP:4935 Clinical Exercise Physiology Internship  
Directed practical field experience; program planning, implementation, evaluation, and administrative procedures.

HHP:4940 Health Promotion Honors Readings  
First step to complete an honors thesis; work with health and human physiology faculty member; comprehensive readings in a specific area (e.g., obesity in children, disabilities and sport); readings include primarily research reviews, popular press, and editorials; production of an annotated bibliography summarizing readings and presentation to faculty member at end of semester; brief research proposal summarizing background, research questions, and methods of selected area.

HHP:4950 Health Promotion Honors Problems  
Continuation of HHP:4940; original research or creative project supervised by a faculty member.
**Sport and Recreation Management**

**SRM:3147 Sport Event Management**  
3 s.h.  
Current status, challenges, and opportunities in sporting event industry; sporting event planning, budgeting, marketing, sponsorship, and evaluation; development of event timelines and event management skills; introduction to networking and interaction with sporting events. Recommendations: SRM:3154.

**SRM:3149 Coaching Interscholastic Athletics**  
3 s.h.  
Techniques and theories of coaching interscholastic athletes; ethics and legal responsibilities of coaching; coaching youth sports; leadership principles and techniques, organizational theories, assessment and implementation of coaching styles; trends, foundations, and principles related to basic philosophies of organized coaching; capstone course for certification of youth sports programs; credit and documentation for advanced coaching certification.

**SRM:3150 Recreation Administration**  
3 s.h.  
Personnel, finance, budgets, liability, marketing.

**SRM:3151 Liability in Sport and Recreation**  
3 s.h.  
Unintentional torts (negligence), civil liability, and criminal liability in recreation and sport settings; focus on community/commercial recreation and campus recreation settings. Requirements: must have 30 s.h. completed.

**SRM:3152 Sport and Recreation Facility Management**  
3 s.h.  
Facilities management, personnel assignment and evaluation, fee structures, maintenance, programming, compliance with regulations and standards. Requirements: must have 30 s.h. completed.

**SRM:3153 Sport Business Practices**  
3 s.h.  
Business of professional and intercollegiate athletics including league, team, and player-level issues; revenue generation and distribution; competitive balance issues; sport league structure strategies; business behind intercollegiate athletics and challenges facing NCAA structure; negotiation. Requirements: must have 30 s.h. completed.

**SRM:3154 Foundations of Event Management**  
3 s.h.  
Large, major special events, professional meetings, and conferences; development and planning, implementation of events, management and evaluation of events; development requirements of planning events, development strategies, budgeting, staffing requirements, resource allocation, site planning, basic risk management requirements, emergency procedures; event implementation policy and procedures; relationship to elements within development stages; event management and evaluation procedures. Same as EVNT:3250, JMC:3250.

**SRM:3156 Design of Recreation Facilities**  
3 s.h.  
Horticulture, floriculture, landscape design, agronomy, turf management; their relation to planning and design of recreation and park areas and facilities. Requirements: must have 30 s.h. completed.

**SRM:3157 Managerial Operations in Sport and Recreation**  
3 s.h.  
Introduction to the operation of a private or nonprofit sport-related business.

**SRM:3158 Sport and Recreation Promotion**  
3 s.h.  
Foundations and principles of recreation sport promotion and sales operation; application of foundations and principles to sport and recreation industries; historical aspects; current and future trends of sport and recreation management as it relates to sales and promotions; sales management, marketing, financial/economic, legal, and ethical principles related to sport management. Requirements: must have 30 s.h. completed.

**SRM:3172 Finance in Sport and Recreation**  
3 s.h.  
Capital funding and revenue acquisition for funding public and private sport and leisure service organizations; contemporary sport and leisure service; financial and economic issues. Requirements: 30 s.h. completed.

**SRM:3173 Work and Leisure in American Culture**  
3 s.h.  
Methods and insights of American studies and leisure studies applied to work/leisure relationship in American life; patterns and perceptions of work and leisure, leisure’s share and potential; changing American values.

**SRM:3175 Sales in Sport**  
3 s.h.  
Fundamentals of business development and sales management; incentivizing sports consumers, direct and indirect sales strategies, brand communications, atmospherics, technology in sports sales, ticket sales, licensing products, negotiating sports sponsorships, and brand building. Recommendations: health and human physiology major.

**SRM:3176 Sports Analytics for Coaches, Managers, and Other Decision Makers**  
3 s.h.  
Data management, analytic models, and information systems; how sports analytics are used to make decisions for structuring athletic departments, develop in-game competitive strategies, and improve player performance; analytic examples applied to professional sports, college sports, high school sports, and fantasy sports; experience with statistics or computer science not required.

**SRM:3177 Communications and Public Relations in Sports**  
3 s.h.  
How public relations is used to promote service products, demonstrate social responsibility, and communicate with consumers and investors; campaigns, customer service, legal and ethical considerations in promoting service products, media events, information services, public relations in strategic management, atmospherics, critical service moment, social media. Recommendations: health and human physiology major.

**SRM:3300 Writing for Sport and Recreation Managers**  
3 s.h.  
How public relations is used to promote service products, demonstrate social responsibility, and communicate with consumers and investors; campaigns, customer service, legal and ethical considerations in promoting service products, media events, information services, public relations in strategic management, atmospherics, critical service moment, social media. Recommendations: health and human physiology major.
Development of effective writing skills that apply to diverse professional situations; proper mechanics of effective writing, persuasive writing, informative writing, factual writing; writing styles applied to document formats (e.g., press releases, emails, memos, marketing messages, interviews, fundraising requests, digital newsletters); student-centered activities in a workshop format.

**SRM:4190 Preinternship** 0-1 s.h.
Orientation to internship process. Requirements: sport and recreation management major.

**SRM:4194 Honors Readings** arr.

**SRM:4195 Honors Problems** arr.

**SRM:4196 Internship** 9 s.h.
Capstone course for recreation sport business track; 360 contact hours of practical experience with private or nonprofit recreation or sport-related enterprise; supervision by an agency mentor and a university representative. Prerequisites: SRM:1060 and (SRM:3150 or SRM:3157) and SRM:3151 and SRM:3152 and SRM:3153 and SRM:3156 and SRM:3158 and SRM:3172 and SRM:4190. Requirements: completion of all recreation sport business core courses, foundation courses, and elective concentration courses.

**SRM:4197 Sport and Recreation Business Practicum** 1-3 s.h.
Educational opportunity involving a small group of students in a unique sport business experience; students serve as consultants for a sport or recreation organization; in-class preparation prior to off-campus work with designated agency; sport or recreation enterprise vary according to faculty expertise and agency availability.

**SRM:4198 NCAA Rules Compliance and Enforcement** 3 s.h.
Rules that govern NCAA athletics, rules compliance function on campuses of member institutions, and enforcement of rules by NCAA; essential legislation in NCAA Manual, including bylaws covering recruiting, eligibility, and amateurism; history of NCAA as related to organization's current structure and activities; summer session capstone experience includes attendance at NCAA Regional Rules Seminar in Indiana and participation in educational sessions conducted by NCAA staff.

**Therapeutic Recreation**

**TR:3160 Introduction to Therapeutic Recreation** 3 s.h.
Lifestyles and barriers faced by persons with disabilities; basic aspects of the therapeutic recreation profession; skills used to establish therapeutic relationship; techniques used with patients; theoretical and conceptual bases for practice.

**TR:3161 Assessment and Evaluation in Therapeutic Recreation** 3 s.h.
Basic assessment psychometrics (e.g., reliability), standardized instrumentation and data collection (e.g., observation, self-report), construction of instruments, data reduction. Prerequisites: TR:3160.

**TR:3162 Therapeutic Recreation: Clientele** 3 s.h.
Developmental patterns of special populations; examination of specific interventions and research applied to specific cognitive, emotional, and physical impairments.

**TR:3163 Concepts and Issues in Therapeutic Recreation: Advancement of the Profession** 3 s.h.
Ethical, professional, and theoretical issues in delivery of therapeutic recreation services; impact of legislation, standards of practice, health care reform; application of research to practice and marketing services. Prerequisites: TR:3160.

**TR:3164 Therapeutic Recreation: Rehabilitation** 3 s.h.
In-depth review of therapeutic recreation techniques used in clinical and community rehabilitation; opportunities to use techniques with patients. Prerequisites: TR:3160.

**TR:3165 Child Life: Methods and Materials** 3 s.h.
Interventions unique to child life practice (e.g., pain management, coping, preoperative play, terminal illness). Prerequisites: TR:1077.

**TR:3166 Child Life: Seminar** 3 s.h.

**TR:3170 Children and Health Care** 3 s.h.
Broad overview of issues and systemic approaches to working with children in a health care setting; practical and clinically-based experiences for pediatric population; provision of health care services to patients and issues that affect them; models of intervention, ethical issues, case studies, and impact of cultural diversity on health care; for undergraduates who are interested in working with children in a health care setting.

**TR:3171 Child Life Practical Application** 3 s.h.
Overview of medical conditions and treatments commonly encountered by children and adolescents in health care settings; common pediatric sedation medications; sequence of medical procedures to understand how to provide procedural preparation and support; facilitate medical play with pediatric population.

**TR:3174 Cultural Perspectives in Health Care** 3 s.h.
Health care beliefs related to various cultures and religions; focus on illness, hospitalization, treatment, death.

**TR:3260 Play and Childhood** arr.
Multiple levels of theories and current research on importance of play in child development; advocacy for importance and necessity of play in childhood that leads to well being and healthy lifestyles; practical- and theoretically-based experiences; for students interested in working with children in health care, clinical, school, community, and family life settings. Prerequisites: TR:1077.
TR:3261 Inclusive Recreation 3 s.h.
Laws pertaining to access to recreation and leisure opportunities for disabled persons in a community; evaluation of physical access to built environment; how social construction of disability can be a barrier to integrated leisure involvement; practical aspects of how to include disabled persons in community recreation and sport activities.

TR:3281 Special Projects in Child Life Practice 2 s.h.
Student directed and student led hospital camping experience for patients at the University of Iowa Children's Hospital; planning and preparing for a large function, planning and leading therapeutic activities, working directly with patients and their families, processing and discussion of experiences and concerns; practical and clinical-based experiences for students interested in working with pediatric population in health care setting. Requirements: hospital orientation, patient confidentiality (HIPAA) training, and health screening.

TR:4167 Child Life Practicum 1-3 s.h.
Experience observing and assisting child life staff members providing services to hospitalized children, under Certified Child Life Specialist supervision.

TR:4169 Spring Break Child Life Experience 1 s.h.
Practical experience with ill children, including a trip to the Give Kids the World village in Florida; documentation and engagement of course materials, experience working with ill children; students are assigned a specific diagnosis and present the diagnosis (appropriate statistics, effects of hospitalization, treatment, etc.) on child and family; coping strategies, appropriate methods of talking to and interacting with children and families, overview of child life in hospitals.

TR:4190 Preinternship Seminar 1 s.h.
Interviewing skills, résumés and cover letters, selection of internship site(s), application procedures for internship positions, and responsibilities of interns to the agency.

TR:4191 Therapeutic Recreation Internship arr.
Practical field experience; direct leadership, program planning, administrative procedures. Prerequisites: TR:4190.

TR:4192 Child Life Internship 9,12 s.h.

TR:4193 Independent Study arr.
Problem in a specific area.

TR:4194 Honors Readings arr.
Independent reading or research project under faculty supervision usually leading to an honors paper. Requirements: admission to honors program.

TR:4195 Honors Problems arr.
Completion of a project over and above normal independent study as an honors project; major research effort involving close work with an advisor.

Graduate

Athletic Training Program

ATEP:5010 Seminar in Athletic Training 1-4 s.h.
Educational issues faced by approved clinical instructors in athletic training education programs. Offered fall semesters.

Health and Human Physiology

HHP:5000 Problems arr.
HHP:6000 Research arr.
HHP:6010 Non-Thesis Seminar 2 s.h.
For candidates for the M.S. without thesis. Offered spring semesters.

HHP:6050 Advanced Topics in Obesity 3 s.h.
In-depth overview of biological, behavioral, and societal causes and consequences of obesity epidemic; potential solutions from primary and secondary prevention standpoints; causes of obesity, available treatments, and global impact that obesity epidemic presents to society.

HHP:6130 Advanced Skeletal Muscle Physiology 1,3 s.h.
Skeletal muscle structure, contractile mechanisms, production of movement, biomechanical properties; adaptation to increased use, disuse, injury. Offered spring semesters. Prerequisites: HHP:3500.

HHP:6150 Advanced Clinical Exercise Physiology 1,3 s.h.
Recent advances in exercise physiology for clinical populations; emphasis on acute and chronic responses to exercise in healthy aged adults and in patients with cardiac, vascular, pulmonary, and metabolic diseases; basic and intermediate electrocardiography (ECG), pathophysiology of disease process, clinical assessment of disease severity, diagnostic testing, acute exercise responses, and exercise rehabilitation. Prerequisites: HHP:3500 and HHP:4410. Recommendations: HHP:4460.

HHP:6200 Advanced Metabolic Exercise Testing and Prescription 1,3 s.h.
Basic techniques in physical fitness assessment; prescription of exercise for healthy and unhealthy adults; promotion of physical activity within communities; knowledge and skill competencies required for certification as American College of Sports Medicine health fitness instructor. Prerequisites: HHP:2200 and (HHP:1300 or HHP:3500).

HHP:6210 Epidemiology of Physical Activity 3 s.h.
Physical activity/disease relationships examined through application of epidemiologic methods, including research design, interpretation of studies, selection of measures to fit research questions. Same as EPID:6245.
HHP:6300 Seminar in Motor Control  1 s.h.
Current topics in neural control of movement, biomechanics, and rehabilitation sciences.

HHP:6400 Integrative Physiology Seminar  1 s.h.
Current topics in cardiovascular physiology, vascular biology, free radical biology.

HHP:6410 Advanced Exercise Physiology  1,3 s.h.
Mechanisms responsible for acute and chronic effects of exercise on different organ systems of the body. Offered fall semesters. Prerequisites: HHP:1300 or HHP:3500.

HHP:6460 Advanced Cardiovascular Physiology  1,3 s.h.

HHP:6470 Advanced Physiology of Aging  1,3 s.h.
Effects of aging on cells, tissues, and organs; how aging influences function of major body organ systems and the whole organism; physiological mechanisms that underlie age-related changes in body function and performance; integrative approach with focus on human aging. Prerequisites: HHP:1100 and HHP:3500.

HHP:6480 Advanced Human Pharmacology  1,3 s.h.
General pharmacology (administration, distribution, elimination of drugs, dose response curves, adverse effects, placebos, homeopathy); pharmacotherapy of selected human diseases, pathophysiologic aspects of disease, how different classes of drugs modify pathophysiologic effects to restore health or reduce impact of disease; focus on mechanisms of drug actions in humans; adverse effects, pharmacokinetic considerations, drug interactions; how to write prescriptions. Prerequisites: HHP:3500.

HHP:6500 Seminar in Health Promotion  1 s.h.
Peer and faculty response to graduate student work addressing health promotion, physical activity and health outcomes, clinical exercise physiology; review and critique current literature; presentation of published work or in-process projects; critical thinking, scientific writing, and oral communication skill development pertaining to health promotion.

HHP:6510 Advanced Energy Metabolism in Health & Disease  1,3 s.h.

HHP:7000 Practicum in College Teaching  arr.

HHP:7290 Graduate Internship  3-9 s.h.
Requirements: recreational sports management emphasis.

HHP:7300 Advanced Neural Control of Posture and Movement  1,3 s.h.
Neuroanatomical and neurophysiological bases of human motor control; mechanisms for locomotion and posture, control of arm and hand movements, role of sensory information. Offered spring semesters. Prerequisites: HHP:3500. Requirements: anatomy or human physiology course.

HHP:7500 Thesis: M.S.  0-4 s.h.


Sport and Recreation Management

SRM:5065 The Economy of Experience  3 s.h.
In-depth analysis of emerging experience economy; just as manufacturing sector of economy supersedes agriculture and service economy supersedes manufacturing, how experience economy is gaining ascendancy as the last, best hope for future economic growth; exploration of current research in positive psychology and sociologist findings on evolution of post-materialist values as related to experience economy; evaluation of current trends; critical analysis and theory development; case studies; original research and investigation of novel marketing possibilities and experience design.

SRM:6251 Risk Management  3 s.h.
Legal knowledge necessary for effective management of sport, recreation, and physical activity programs, avoidance of legal problems; strategies for addressing issues such as right to participate, liability for injuries, risk management; legal statutes that govern sport, health, recreation organizations.

SRM:6252 Economics and Financing  3 s.h.
Economic issues for sport/leisure services in nonprofit, private/commercial, and public sectors; strategic financial analysis for the nonfinancial manager; principles, issues in financing sport/leisure organizations.

SRM:6253 Sport Administration  3 s.h.
Overview of various segments that constitutes the role and function of a sport administrator (i.e., planning, organizing, leading, controlling); focus on ways in which sport administrators and their subsequent organizations influence and are influenced by the link between sport and globalization; sport administration encompassing services provided within an organizational context; administration viewed as the coordination of production and distribution of those services.

SRM:6254 Marketing and Sport Promotion  3 s.h.
Overview of varied segments that constitutes sports business practice, including marketing, data-based marketing, sales, promotion, sponsorship; varied segments that make up the sport industry, including the mass media, infrastructure, stadium building, consumer behavior; readings and discussions consider the development and structure of each segment, interactions between segments, planning, policy implications; focus on the United States, professional team sports, comparisons to other sports.

Therapeutic Recreation

TR:5200 Historical and Philosophical Perspectives on Leisure  3 s.h.
Historical and philosophical origins of leisure studies; historical issues related to leisure ideas, such as shorter hours, share-the-work, utopian vision of a better society.

TR:5205 Research Methods and Leisure Behavior 3 s.h.
The scientific process: research designs for experiments and surveys, questionnaire construction, sampling theory, basic data analysis.

TR:5211 Professional Ethics and Practice in Pediatrics 3 s.h.
Examination of core issues in clinical pediatrics; beginning life critical care, end-of-life care, role of medical technology, public health research pertinent to children, and maintaining professional boundaries. Prerequisites: TR:1077.

TR:6262 Procedures in Therapeutic Recreation 3 s.h.
Current issues in the field; application of business and research principles to therapeutic recreation practice and program administration.

TR:7289 Graduate Practicum in Therapeutic Recreation 3 s.h.
Field placement with a therapeutic recreation service delivery agency; meets NCTRC certification standards. Prerequisites: TR:3160. Corequisites: TR:3163 and TR:3164.

Health and Physical Activity Skills

HPAS:1001 Alcohol and Your College Experience 1 s.h.
Patterns of alcohol, drug use focused on college years; strategies for monitoring use, behavioral change plans for implementing lower-risk drinking practices; for drinkers and non-drinkers.

HPAS:1002 Tobacco and Your College Experience 1 s.h.
Current behavior change theories related to tobacco use, cessation; nicotine replacement therapies (NRT), non-NRT methods; triggers, relapse prevention, cognitive behavioral skills, support systems; for smokers and non-smokers.

HPAS:1003 Resiliency and Your College Experience 1 s.h.
Resiliency and psychological hardiness theories relevant to college life; resiliency and ability to cope with challenges; components of psychological fitness; skills for personal growth and emotional well-being.

HPAS:1004 Food and Your College Experience 1 s.h.
Sociocultural perspective on the forces that facilitate "junk" diets, particularly during young adulthood; basic components of nutrition; opportunity to develop skills in diet planning and healthy eating.

HPAS:1005 Indoor Group Cycling 1 s.h.
Introduction to group cycling; bike setup, safety, proper technique, injury prevention, and utilization of interval training.

HPAS:1010 Personal Fitness 1 s.h.
HPAS:1020 Core Strengthening 1 s.h.
HPAS:1030 Aerobics 1 s.h.
HPAS:1040 Pilates 1 s.h.
HPAS:1060 Resistance Training 1 s.h.

HPAS:1070 Hawkeye Pump I 1 s.h.
Introduction to basic principles of weight training using barbells and dumbbells as resistance; muscular anatomy, principles of weight training, muscular strength, muscular endurance, weight room safety, motivation and goal setting, personal program development; no prior weight training experience required.

HPAS:1075 Hawkeye Pump II 1 s.h.
Builds on skills and concepts acquired in HPAS:1070; advanced weight training programs aimed at developing muscular strength and endurance. Prerequisites: HPAS:1070. Recommendations: knowledge of basic anatomy, ability to demonstrate proper lifting techniques, and understanding of weight training principles.

HPAS:1080 Olympic Weightlifting 1 s.h.
Introduction to Olympic weightlifting exercises including snatch, clean and jerk, power snatch, and power clean. Prerequisites: HPAS:1070.

HPAS:1110 Fitness Walking 1 s.h.
HPAS:1130 Jogging I: Beginners 1 s.h.
HPAS:1135 Jogging II 1 s.h.
HPAS:1210 Relaxation Techniques 1 s.h.
HPAS:1220 Flexibility 1 s.h.
HPAS:1230 Hatha Yoga 1 s.h.

HPAS:1320 Lap Swimming I 1 s.h.
HPAS:1325 Lap Swimming II 1 s.h. Prerequisites: HPAS:1320.

HPAS:1410 Badminton 1 s.h.
HPAS:1430 Racquetball 1 s.h.
HPAS:1440 Table Tennis 1 s.h.
HPAS:1450 Tennis 1 s.h.
HPAS:1530 Volleyball I 1 s.h.
HPAS:1535 Volleyball II 1 s.h. Prerequisites: HPAS:1530.
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<thead>
<tr>
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<tbody>
<tr>
<td>HPAS:1549</td>
<td>Sand Volleyball</td>
<td>1 s.h.</td>
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<tr>
<td>HPAS:1550</td>
<td>Slow-Pitch Softball</td>
<td>1 s.h.</td>
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<tr>
<td>HPAS:1560</td>
<td>Ultimate Frisbee</td>
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<td>HPAS:1610</td>
<td>Self Defense</td>
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<td>HPAS:1620</td>
<td>Karate</td>
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<td>Kick Boxing</td>
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