INTEGRATIVE EXERCISE SCIENCE

Introduction

The Integrative Exercise Science Department emphasizes a combination of a strong science education, hands on experiential learning in laboratory and clinical settings, and a foundation in biomedical humanities designed to develop ethically grounded and humanistic healthcare professionals.

Students majoring in integrative exercise science complete a strong core of exercise science coursework integrated with biology and biomedical humanities courses. The major is accompanied by a requirement that students concurrently complete a minor in a second discipline aligned to their individual learning or professional goals and/or a sports health concentration to further prepare those wanting to pursue graduate opportunities in the medical and allied health professions. An internship or research project as a culminating experience provides the opportunity for the student to apply the theoretical knowledge of coursework and laboratory experiences into a practical or research environment.

Students electing the integrative exercise science major will complete their chosen minor and/or a sports health concentration. Students will work closely with the integrative exercise science faculty to determine the best academic minor and/or sports health concentration to meet their individual goals and objectives.

- **The sports health track** is designed for students who are interested in physical therapy, athletic training, occupational therapy, physician's assistant, chiropractic medicine, and clinical exercise physiology. Recommended complementary minors include biology, biomedical humanities, chemistry, or neuroscience.

Students interested in the sports health track may elect to complete a sports health concentration instead of one of the recommended minors listed above, which can facilitate completion of prerequisite courses required by medical and allied health graduate programs. Students seeking this option must obtain permission from the IES program director.

Prerequisite courses associated with the sports health concentration include but are not limited to:

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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tr>
<td>BIOL 15100 &amp; BIOL 15200</td>
<td>INTRO BIOL I W/LAB: SM and INTRO BIO II W/LAB:SM</td>
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<td>CHEM 12000 &amp; CHEM 12100</td>
<td>GEN I:STRUCTURE/BOND-W/LAB:SM and GEN II:INTR CHEM ANLS-W/LAB:SM</td>
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<td>MATH 10800</td>
<td>STATISTICS:MM</td>
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<td>PHYS 11300 &amp; PHYS 11400</td>
<td>PRINCIPLES PHYSICS I-W/LAB:SM and PRINCIPLES PHYSICS II-W/LAB:SM</td>
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<td>PSYC 25000</td>
<td>DEVELOP ACROSS THE LIFE SPAN</td>
<td>3</td>
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<td>PSYC 25500</td>
<td>ABNORMAL PSYCHOLOGY</td>
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1. Prerequisite: PSYC 10100 GENERAL PSYCHOLOGY
2. Prerequisite: PSYC 10100 GENERAL PSYCHOLOGY and PSYC 21000 RESEARCH DESIGN & ANALYSIS:SM or BIOL 21000 RESEARCH DESIGN & ANALYSIS:SM

- **The human performance track** prepares students who are interested in interscholastic, intercollegiate, or professional sports strength and conditioning, wellness & health promotion or corporate fitness, coaching, and personal training. Recommended complementary minors include management, educational studies, psychology, sociology, or biomedical humanities.

- **The sport & fitness management track** is designed for students who are interested in athletic administration, sports information, sports facilities management, sports entrepreneurship, and fitness center management. Recommended complementary minors include management, communication, educational studies or entrepreneurship.

Integrative Exercise Science Instructional Program

A variety of 1-2 credit hour courses are offered to students with an interest in exercise science and/or athletics. These courses are elective courses which count toward graduation but do not meet core curricular requirements. These courses are 10000- and 20000-level courses designed for the student to understand the principles and learn the practical application of the specific activities.

Faculty

James W Johnston, (1989) Assistant Director of Athletics; Head Athletic Trainer; Adjunct Faculty in Integrative Exercise Science
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Mallory Kobak, (2019) Assistant Professor of Integrative Exercise Science
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Course Descriptions

Integrated Health Science

IES 10100: FOUNDATIONS EXERCISE SCIENCE: 3 Hour(s)
FOUNDATIONS EXERCISE SCIENCE ~ This course will provide an overview of Exercise Science professions including: exercise physiology, clinical exercise physiology, athletic training, sports nutrition, sports psychology, and biomechanics. Major concepts and principles associated with each area of study will be introduced which include, but are not limited to, hemodynamic responses to exercise, adaptations to acute and chronic bouts of exercise, rehabilitation and treatment protocols for sports injuries, the cross-over effect, methods of energy expenditure, the inverted U hypothesis, the social cognitive theory, and physics-related principles such as buoyancy, acceleration, force, and Newton's three laws of motion. This course will also cover the professional activities (i.e., professional organizations and certifications) that are related to these professional applications with a specific focus on the American College of Sports Medicine and National Strength and Conditioning Association.

IES 10500: MEDICAL TERMINOLOGY HEALTH PRO: 2 Hour(s)
MEDICAL TERMINOLOGY FOR HEALTH PROFESSIONALS ~ This course introduces students to the language of medicine. Students will gain an understanding of the rules of building and analyzing medical words, and medical terms associated with the body. Utilizing a systems-approach, students will define, interpret, and pronounce medical terms relating to structure and function, pathology, diagnosis, clinical procedures, oncology, and pharmacology. In addition to medical terms, common abbreviations applicable to each system will be interpreted.

IES 20300: INTRO TO HEALTH COMMUNICATION: 4 Hour(s)
INTRODUCTION TO HEALTH COMMUNICATION ~ This course provides an introduction to the various roles of communication in health. Students will examine the multidimensional and interdisciplinary aspects of the field through the analysis of interpersonal, cultural, social, and organizational issues related to health communication. Course readings and assignments will allow students to explore health communication through the eyes of patients, health care providers, health care leaders, health campaign designers, etc. and to learn how factors like culture, media, personal identity, technology, and social networks can contribute to health, illness, risk behavior, health care, and health promotion.

IES 21000: FITNESS & HEALTH PROMO/MGMT: 3 Hour(s)
FITNESS & HEALTH PROMOTION & MANAGEMENT ~ This course is designed to equip students with a series of promotion, management, and other administrative tools necessary to operate fitness and/or health related programs. Students will become familiar with the assessment of certifications, proper group exercise instruction, and exercise leadership skills. In addition, students will also become familiar with current standards to organize fitness facilities and exercise programs in a variety of settings such as public and private sport facilities, recreation complexes, corporate fitness centers, and hospital wellness programs.

IES 22000: FIRST AID AND CPR: 1 Hour(s)
FIRST AID AND CPR ~

IES 23500: SPORT/EXERCISE/PERFORM PSYC: 4 Hour(s)
SPORT, EXERCISE, AND PERFORMANCE PSYCHOLOGY ~ Sport, exercise, and performance psychology encompasses the thoughts, feelings, and behaviors of people in performance contexts such as competitive sport, fitness, injury rehabilitation, theater, music, surgery, public speaking, and more. This course adopts a foundations approach to theory and research, while still addressing the practical application of mental skills training to performers. Course content will be relevant to professional practice among coaches, medical professionals, athletes, business professionals, musicians, politicians, and many others.

IES 24400: ATHLETIC TRAINING: 3 Hour(s)
ATHLETIC TRAINING ~ Prevention and care of injuries; skills in bandaging, taping and first aid methods; instruction in the application and use of therapeutic equipment. Successful completion of this course also constitutes completion of both the Red Cross Standard Course in First Aid and the Red Cross CPR course.

IES 28000: SEM:: 4 Hour(s)
SEMINAR ~

IES 28100: INDEPENDENT STUDY: 4 Hour(s)
INDEPENDENT STUDY

IES 29700: FITNESS ADMIN/ORGANIZATION: 3 Hour(s)

IES 30900: SPORTS PSYCHOLOGY: 3 Hour(s)
SPORTS PSYCHOLOGY ~ A systematic analysis of the psychological and social-psychological phenomena influencing human performance behavior in the sporting situation. Major emphasis includes an assessment of psychological concepts such as social motivation, personality development and behavior modification in sport; the sociopsychological basis influencing the interpersonal relationships between athletes, coaches and spectators in the highly competitive sport context; and the development of the somata-psychic theory of human performance behavior.

IES 31000: CARDIAC REHABILITATION: 4 Hour(s)
CARDIAC REHABILITATION ~ This course is designed to familiarize students with the diagnostic and rehabilitation tools to assist individuals with cardiovascular disease towards optimal health. More specifically, students will become familiar with the practices of phase I-IV cardiac rehabilitation programs, ECG interpretation, and the importance of ECG monitoring. Students will be required to recognize normal ECGs as well as abnormal dysrhythmias such as atrial flutter, atrial fibrillation, primary, secondary, and tertiary atrioventricular blocks, ventricular tachycardia, ventricular fibrillation, asystole, and right and left bundle branch blocks. Prerequisites: BIOL (131 or 13100) and BIOL (133 or 13300)
Prerequisite: (BIOL 131 or BIOL 13100) and (BIOL 133 or BIOL 13300)

IES 31100: NUTRITION AND FITNESS: 3 Hour(s)
NUTRITION AND FITNESS ~ This course studies how the body utilizes food and nutrients and how nutrition affects performance. Major areas to be explored include: proper nutritional habits, aerobic and anaerobic metabolism, food exchange system, body composition assessment, ergogenic aids and myths, sound and effective weight control, and nutritional counseling. The course is designed for students pursuing sports medicine or athletic training as a career.
IES 31200: PHYSIOLOGY OF MUSCULAR ACTIVITY AND EXERCISE ~ This course presents an analysis of the physiological effects of muscular activity and exercise upon the human body during various levels of stress. The primary focus assesses changes in the physiological system of the body relative to neuromuscular, cardiorespiratory, metabolic control and adaptation, and heat and fluid regulation during physical activity. Prerequisite: Biology 131 or 13100 or permission

IES 31300: PHYSIOLOGY OF AGING ~ This course examines the physiological changes associated with aging and how it affects physical activity. Emphasis will be given to biological theories of aging, maintenance of homeostasis, age-related changes in each body system, interactions among these systems, diseases that commonly affect older adults, and exercise prescription and programming. Prerequisites: BIOL 131 or 13100 and BIOL 133 or 13300

IES 40000: EXERCISE TESTING/PRESCRIPTION ~ This course is designed to provide students with fundamentals and practice in formulating exercise testing and prescription for healthy populations. Classroom and laboratory techniques for risk stratification, exercise testing, interpretation, and exercise program prescription are major topics. Prerequisites: IES 31200: Physiology of Muscular Activity and Exercise.

IES 40100: EXERCISE TEST/PRESCRIP/SPECIAL ~ This course is designed to provide students with fundamentals and practice in formulating modified exercise testing and prescription for special populations. Special populations include, but are not limited to, cardiovascular, cerebrovascular, and pulmonary diseases, cancer, diabetes mellitus, overweight and obesity, multiple sclerosis, and spinal cord injury. Classroom and laboratory techniques for modified exercise testing, interpretation, and exercise program prescription, as well as disease condition, medications, and limitations to exercise are all major topics. Modified test protocols for exercise assessment screening, counseling skills, cardiorespiratory fitness, musculoskeletal endurance and strength, body composition, flexibility, and how the disease condition affects the exercise prescription and exercise response are emphasized.

IES 40900: SPORTS PSYCHOLOGY ~ A systematic analysis of the psychological and social-psychological phenomena influencing human performance behavior in the sporting situation. Major emphasis includes an assessment of psychological concepts such as social motivation, personality development and behavior modification in sport; the social-psychological basis influencing the interrelationships between athletes, coaches and spectators in the highly competitive sport context; and the development of the somatopsychic theory of human performance behavior. Prerequisites: Physical Education 210, Psychology Jr./Sr. level, or permission.

IES 48000: SENIOR SEMINAR/CAPSTONE ~ This course is the capstone experience for the Integrative Exercise Science major, and will provide students with the necessary information to integrate their specific area of concentration and internship or research experience into a portfolio and oral presentation as the culmination of the Integrative Exercise Science program. Successful completion of the portfolio and presentation are required in order to complete the program. Prerequisite: IES 40000; Co-requisite IES 48100 or IES 49800

IES 48100: SENIOR SEMINAR/CAPSTONE ~ This course is the capstone experience for the Integrative Exercise Science major, and will provide students with the necessary information to integrate their specific area of concentration and internship or research experience into a portfolio and oral presentation as the culmination of the Integrative Exercise Science program. Successful completion of the portfolio and presentation are required in order to complete the program. Prerequisite: IES 40000 and IES 48100 (may be taken concurrently) or IES 49800 (may be taken concurrently)
IES 48100: INDEPENDENT RESEARCH: 1-4 Hour(s)
INDEPENDENT RESEARCH~ Scholarly research and independent investigation in any phase of the discipline of Physical Education Exercise and Sport Science or related sub-disciplines. For students minoring in the discipline who excel in self-direction and intellectual curiosity. A student must submit an outline of the area of research for departmental faculty approval prior to registration. Prerequisites: Five upper division courses or permission. Acceptance into the Exercise and Sport Science minor curriculum. Prerequisite: IES 40000

IES 49800: INTERNSHIP: 4 Hour(s)
INTERNSHIP~ Developed in consultation with the student's major faculty advisor(s), the internship will be tailored to the interests and needs of the student and can be served in a wide variety of private and public organizations. Hiram College's internship program permits students to bridge the distance between the theory they learn in the classroom and the application of their knowledge. The academic department establishes prerequisites for the application procedure. Students should check with individual departments for specific requirements and guidelines for the experience as they may vary by discipline. Prospective interns work with the faculty advisor who will monitor the experience and grade the academic component of the internship. Prerequisite: IES 40000

Physical Education

PHED 11100: SCUBA DIVING: 1 Hour(s)
SCUBA DIVING~ There is an additional cost with this course.

PHED 11200: ADVANCED SCUBA DIVING: 1 Hour(s)
ADVANCED SCUBA DIVING~ There is an additional cost with this course. Prerequisite: PHED 11100 Prerequisite: PHED 111 or PHED 11100

PHED 13200: RACQUETBALL: 1 Hour(s)
RACQUETBALL~

PHED 13500: SELF DEFENSE: 1 Hour(s)
SELF DEFENSE~

PHED 14200: GOLF: 1 Hour(s)
GOLF~

PHED 15400: HORSEMANSHIP I: 1 Hour(s)
HORSEMANSHIP I~ Additional Fee for this course.

PHED 15500: HORSEMANSHIP II: 1 Hour(s)
HORSEMANSHIP II~ Additional Fee for this course. Prerequisite: Physical Education 154 or 15400. Prerequisite: PHED 154 or PHED 15400

PHED 15600: HORSEMANSHIP III: 1 Hour(s)
HORSEMANSHIP III~ Additional Fee for this course. Prerequisite: Physical Education 155 or 15500. Prerequisite: PHED 155 or PHED 15500

PHED 15700: HORSEMANSHIP IV: 1 Hour(s)
HORSEMANSHIP IV~ Additional Fee for this course. Prerequisite: PHED 15600 Prerequisite: PHED 156 or PHED 15600

PHED 16400: SWIM/STAY FIT: 1 Hour(s)
SWIM/STAY FIT~

PHED 16500: WEIGHT TRAINING I: 1 Hour(s)
WEIGHT TRAINING I~

PHED 16700: WEIGHT TRAINING II: 1 Hour(s)
WEIGHT TRAINING II~ Prerequisite: PHED 165 or 16500

PHED 18000: WKSP: 1 Hour(s)
WORKSHOP~ This workshop will provide the opportunity for students to examine a special topic in Physical Education. Through readings, discussions and written assignments there will be opportunities to evaluate the topic at issue. Workshops may be taken Pass/No Credit only. Students may take no more than nine workshops for credit toward graduation. Workshops can be used as elective credit only. (For PGS students only.)

PHED 20000: WELLNESS & FITNESS FOR LIFE: 2 Hour(s)
WELLNESS AND FITNESS FOR LIFE~ The study and application of the various contributions of physical activity and wellness concepts in achieving a state of total well-being, which encompasses the physical, mental, emotional, social, and spiritual dimensions of the whole person. Students enrolling in PHED 20000 should also enroll in either 20300 or 20700 in order to have 3 credit hours in the 3-week session. Cross listed with IES 20000.

PHED 20100: AQUATIC STUDIES: 1 Hour(s)
AQUATIC STUDIES~ An exploration of essential skills, knowledge, and social behavior associated with various aquatic sports activities. An emphasis on personal water safety practices and unique benefits of aquatic activities to enhance a wellness state of being.

PHED 20300: FITNESS MANAGEMENT: 1 Hour(s)
FITNESS MANAGEMENT~ An exposure to proper conditioning principles and the means to achieve lifetime fitness through practical application of these principles. Students will have the opportunity to utilize various pieces of equipment and techniques to actively pursue a healthy fitness environment. They will develop physical, emotional, and social well-being through the advantages of a healthy lifestyle, mind, and body. This course should be taken con-currently with PHED 20000. Corequisite: PHED 20000

PHED 20400: MARTIAL ART FORMS: 1 Hour(s)
MARTIAL ART FORMS~ An exploration of essential skills, knowledge, and social behavior associated with various martial art forms. An emphasis on developing an awareness of the "embodiment" principle of mind, body, and spirit for self-realization, enlightenment, and an inner state of total well-being.

PHED 20500: OUTDOOR PURSUITS: 1 Hour(s)
OUTDOOR PURSUITS~ An exposure to and practical experiences involving physical activities generally performed in the outdoors. An emphasis will be on teaching specific skills necessary to undertake outdoor experiences. The course will be designed around the weather so that appropriate outdoor activities are experienced.

PHED 20600: RACQUET SPORTS: 1 Hour(s)
RACQUET SPORTS~ A progressing introduction to racquet sports including historical perspective, fundamentals, rules, drills, strategies, and comparative analysis and techniques for racquetball, tennis, squash, and badminton.

PHED 20700: RECREATIONAL SPORTS: 1 Hour(s)
RECREATIONAL SPORTS~ Students will explore a wide variety of lifetime sports and skills that will develop the emotional, social, and physical aspects of wellness. Students will have an opportunity to cognitively develop an understanding of rules and basic skills of recreational sports.
PHED 21000: KINANTHROPOLOGY, KINESIOLOGY, PE: 4 Hour(s)
KINANTHROPOLOGY, KINESIOLOGY AND PHYSICAL EDUCATION-- An introduction. An interdisciplinary inquiry into the study of human performance behavior in contemporary American culture and society. In this context, the course examines physical education, dance and sport performance behavior, its meanings, social contexts, and personal and social resources; employs concepts, principles, theories, and methods of inquiry from various disciplines in the study of kinanthropology and physical education; explores the relationship of physical education, dance, sport and contemporary social issues; and examines research studies dealing with the various perspectives of kinanthropology, kinesiology, and physical education.

PHED 24400: ATHLETIC TRAINING: 4 Hour(s)
ATHLETIC TRAINING-- Prevention and care of injuries; skills in bandaging, taping and first aid methods; instruction in the application and use of therapeutic equipment. Successful completion of this course also constitutes completion of both the Red Cross Standard Course in First Aid and the Red Cross CPR course.

PHED 28000: SEM: 1-4 Hour(s)
SEMINAR--

PHED 28100: INDEPENDENT STUDY: 1-4 Hour(s)
INDEPENDENT STUDY-- Open to all Exercise and Sport Science minors with the consent of the instructor. It affords minor students the opportunity to design their own area of study. A significant research paper is normally required. Prerequisite: permission.

PHED 29800: FIELD EXPERIENCE: 1-4 Hour(s)
FIELD EXPERIENCE--

PHED 32000: KINESIOLOGY: APP BIO-MECHANICS: 4 Hour(s)
KINESIOLOGY APPLIED BIO-MECHANICS-- A systematic approach to the analysis of human movements and experience in applying that knowledge to the evaluation of both the performer and the performance. Includes an analysis of the skeletal, muscular and nervous systems and their roles in determining movement efficiency; and an application of kinesiological principles relative to anatomical structures of the body as functional determinants of movement. Prerequisite: Biology 131 or 13100 or permission. Prerequisite: BIOL 131 or BIOL 13100

PHED 38000: SEM: 1-4 Hour(s)
SEMINAR--

PHED 38100: SPC TPC: 1-4 Hour(s)
SPECIAL TOPICS--

PHED 41200: PHYSIOLOGY: MUSC ACT & EXER: 4 Hour(s)
PHYSIOLOGY OF MUSCULAR ACTIVITY AND EXERCISE-- This course presents an analysis of the physiological effects of muscular activity and exercise upon the human body during various levels of stress. The primary focus assesses changes in the physiological system of the body relative to neuromuscular, cardiorespiratory, metabolic control and adaptation, and heat and fluid regulation during physical activity. Prerequisite: Biology 131 or 13100 or permission. (Laboratory Required.)

PHED 48100: INDEPENDENT RESEARCH: 1-4 Hour(s)
INDEPENDENT RESEARCH-- Scholarly research and independent investigation in any phase of the discipline of Physical Education Exercise and Sport Science or related sub-disciplines. For students minoring in the discipline who excel in self-direction and intellectual curiosity. A student must submit an outline of the area of research for departmental faculty approval prior to registration. Prerequisites: Five upper division courses or permission. Acceptance into the Exercise and Sport Science minor curriculum.

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Academic Offerings

- Integrative Exercise Science Major (https://catalog.hiram.edu/undergraduate/schools/health-medical-humanities/integrative-exercise-science/integrative-exercise-science-major/)