EXERCISE AND SPORT SCIENCES

Deborah King, (jives@ithaca.edu) Professor and Chair of Graduate Program

The School of Health Sciences and Human Performance offers a master of science degree program in exercise and sport sciences with concentrations in exercise physiology, sport psychology, and human performance. Thesis and non-thesis plans within these areas allow students to match their learning experiences to individual academic strengths and career plans. A small student body and knowledgeable, involved faculty enhance program individualization, as does the opportunity to take courses at nearby Cornell University and to pursue independent study.

Program Time Frame
The time it takes to complete the program is dependent on whether the student chooses the thesis or non-thesis plan, whether they opt for an internship, and the student’s individual plans. A full complement of required and elective courses offered during the summer enables many non-thesis students complete the M.S. degree in a 12-month period. Other non-thesis students not on an internship generally finish within 1.5 years. Thesis students should plan on two years to complete their coursework and thesis.

Admission Requirements
Admission to the exercise and sport sciences program is granted on the basis of cumulative undergraduate grade point average (GPA), Graduate Record Examination (GRE) scores, and letters of recommendation. To be considered for admission, applicants must have an undergraduate degree from an accredited institution.

Consideration is given to those applicants whose academic preparation most closely aligns with their intended area of concentration (i.e., exercise physiology, sport psychology, or human performance). Applicants for concentrations in exercise physiology usually have undergraduate degrees in areas such as exercise science, health science, athletic training, nursing, or biology. For the sport psychology concentration, students usually have undergraduate degrees in conceptually related content areas that emphasize psychology or physical education and coaching. For the human performance concentration, students usually have undergraduate degrees that relate to the combined content areas for both exercise physiology and sport psychology. Regardless of area of background, prerequisite courses must be taken.

Applications are reviewed on an individual basis, taking into account such factors as previous academic achievements, successful professional experience, and special personal circumstances. Applicants who have questions regarding their eligibility for admission are encouraged to contact the chair of the program at dking@ithaca.edu (jives@ithaca.edu) or 607-274-1479.

Tuition Expenses
Please visit the graduate admission webpage (http://www.ithaca.edu/gradadmission/finaid/) for information regarding current tuition expenses.

Academic Warning and Dismissal
The graduate program in exercise and sport sciences follows the Ithaca College Graduate policies regarding academic warning and academic dismissal. Students on academic warning are not permitted to enroll in a thesis, independent research, or independent reading courses.

Academic Advising
Deborah King, chair of the graduate program in exercise and sport sciences, serves as the academic adviser for all students enrolled in the program. Other faculty may serve as advisors for students with special interests. Students writing a thesis select a thesis adviser and a second reader from among the graduate faculty in Exercise and Sport Sciences.

Pass/Fail Option
All graduate courses, other than Thesis II and Seminar, must be taken for a letter grade. There is no pass/fail option for other graduate courses in exercise and sport sciences.

Graduate Assistantships
A limited number of assistantships are available for full- and part-time matriculated graduate students. The assistantships include a scholarship, which is applied to the tuition bill in the form of a tuition waiver, and a taxable salary for carrying out assigned duties. The Graduate Program in Exercise and Sport Sciences requires an application for a graduate assistantship separate from the admissions application. See the ESS Graduate webpages for more details.

Students must have an undergraduate cumulative GPA of 3.00 or higher in order to be considered for assistantships. Assistantships are typically awarded on a two-semester basis and involve 12-15 hours per week of duties and responsibilities arranged and supervised by a faculty member.

Assistantships are offered in the wellness clinic as fitness and research specialists; in the anatomy, physiology, kinesiology, biomechanics, exercise physiology, and neuromuscular control laboratories; for some recreational sports; and for coaching varsity athletic teams. Additional assistantships are offered in athletic training and for research supervision. In any given year about 75 percent of the full-time matriculated graduate students in exercise and sport sciences hold assistantships.

Major
- Exercise and Sport Sciences – Master of Science Degree with Thesis (https://catalog.ithaca.edu/graduate/exercise-sport-sciences/exercise-sport-sciences-master-science-degree-thesis/)

ESSG 51200 Psychological Perspectives of Sport
Focuses on personal factors and theoretical perspectives important to the understanding and subsequent improvement of sport performance. Topics include anxiety, arousal, attention, team building, motivation, leadership, communication, and peak performance training. (FY) 3 Credits
ESSG 51300 Psychological Applications to Sport Performance
Emphasizes a variety of psychological concepts related to the enhancement of sport performance. The course is conducted as a seminar emphasizing participant interaction. Small group and cooperative learning formats are used in developing performance workshops and a mental training program for application when working with and consulting student-athletes. (S, Y) 3 Credits

ESSG 51400 Counseling Student-Athletes
Introduces the student to the many areas of study within the sport consulting and counseling fields. Concepts of an applied nature focus on skills currently used in counseling student-athletes. The basics for applying appropriate counseling strategies to various student-athlete populations are developed through lecture, role playing, and modeling formats. (F, Y) 3 Credits

ESSG 51500 Effective Team Building
Focuses on an understanding of people and the interpersonal communication and leadership skills necessary for effective and cohesive team development. Stages of group development, barriers to change, and conflict resolution are discussed. (SU) 1 Credit

ESSG 51600 Motivation for Superior Performance
Focuses on an understanding of motivation and its importance to performance. Various motivational approaches are discussed, with emphasis on influencing others toward goal adherence and attainment. (SU) 3 Credits

ESSG 51800 Exercise and Rehabilitation Psychology (NLA)
Focuses on personal factors and theoretical perspectives important to understanding exercise behavior. Topics include the mental health aspects of exercise, the biopsychology of stress and disease, the factors that influence exercise participation and adherence, theories of behavior change, interventions to change physical activity behavior, and the psychological factors related to perceived exertion. Students may not get credit for both ESSG 51800 and EXSS 46500. Graduate students have additional workload and responsibilities. (F, Y) 3 Credits

ESSG 52000 Advanced Biomechanics of Human Movement
An in-depth exploration of the biomechanics of human motion focusing on the concepts and skills needed to perform and interpret biomechanical analyses of a variety of human movements. Topics include anthropometry, kinematics, kinetics, and mechanical work, energy, and power. Selected human movement skills from sport, clinical, and occupational settings will be examined in lecture and during hands on laboratory experiences. Students may not get credit for both ESSG 52000 and EXSS 42000. Graduate students have additional workload and responsibilities. Prerequisites: Undergraduate physics and biomechanics. (S,Y) 3 Credits

ESSG 52100 Advanced Study in Exercise Physiology (NLA)
The physiological mechanisms that regulate the body’s responses and adaptations to exercise. Special physiological considerations of gender, development and aging, obesity, pregnancy, and environmental stress (e.g., altitude, pollution, extreme temperature) are emphasized. Popular pharmaceutical and dietary manipulations used to enhance exercise performance are discussed. Experimental research in exercise physiology is introduced, and limited laboratory experiences are scheduled during class time. Students may not get credit for both ESSG 52100 and EXSS 42100. Graduate students have additional workload and responsibilities. Prerequisites: One course in exercise physiology. (S,F,Y) 3 Credits

ESSG 54000 Physiological Mechanisms of Exercise: Cellular Aspects
Focuses on metabolic and muscular aspects of exercise, primarily addressing cellular mechanisms that explain physiological responses and adaptations occurring with exercise. Discussion of related endocrinological issues and performance-enhancing agents augments presentation of basic cellular material. Data collection using key pieces of laboratory equipment is selectively integrated. Prerequisites: Undergraduate exercise physiology course. 3 Credits

ESSG 54200 Physiological Mechanisms of Exercise: Systemic Aspects
Focuses on cardiovascular, pulmonary, thermoregulatory, immunological, and renal aspects of exercise, primarily addressing the physiological responses and adaptations these systems undergo with exercise. Data collection using key pieces of laboratory equipment is integrated into the course. Prerequisites: Undergraduate exercise physiology course. (S, Y) 3 Credits

ESSG 54400 Multidimensional Assessment of Physical Function
Team-taught survey of the physical functions that affect performance, physical abilities, and activities of daily living (ADL) in various populations. Musculoskeletal function, coordination and motor skills behavior, and body composition are examined as they influence performance decrements, physical dysfunction, pain, and the ability to perform ADLs. Also examined are evaluations of physical function and alternative approaches to movement training so as to enable appropriate recommendation or referral. Prerequisites: Undergraduate exercise physiology and biomechanics or kinesiology. (F; Y) 3 Credits

ESSG 54500 Instrumentation of Biomechanics (NLA)
An introduction to the tools and techniques used in biomechanical analyses of human movement. Emphasis is placed on video analysis, including video equipment, videographic principles, qualitative analysis, and 2-D and 3-D quantitative analysis. Hands-on experiences with different types of video equipment and analysis systems are provided. Students complete human movement analysis projects using different video systems. Familiarity with other biomechanics instrumentation such as force plates will be provided based on student interest. Prerequisite: Advanced undergraduate biomechanics, graduate biomechanics, or permission of instructor. (IRR) 3 Credits
ESSG 54600 Cardiopulmonary Assessment for Exercise
Techniques for assessment of cardiovascular and pulmonary disease as well as functional capacity in these conditions. Emphasis is placed on electrocardiography and maximal grades exercise testing. Other diagnostic techniques (e.g., echocardiography, nuclear imaging) are also presented. Discussion of the impact of assessment information and medications on appropriate exercise prescriptions. Material will help in meeting requirements for certification by outside agencies (e.g., ACSM). Credit may not be received for both this course and EXSS 46400. Graduate students have additional workload and responsibilities. (FY) 3 Credits

ESSG 54800 Pathophysiology, Limited Capacity, and Exercise
Study of the pathophysiology of disease and disabling states, the assessment of exercise potential, and the special considerations for the prescription of exercise in these cases. Cardiac and pulmonary rehabilitation and diabetic and special considerations for aging are discussed. Renal disease, osteoporosis, arthritis, brain disorders (e.g., Parkinson's), low back pain, chronic fatigue, multiple sclerosis, and depression are also addressed. Material will help in meeting requirements for certification by outside agencies (e.g., ACSM). Credit may not be received for both this course and EXSS 44800. Graduate students have additional workload and responsibilities. (F, Y) 3 Credits

ESSG 60100 Evidence Based Sport and Exercise Psychology (NLA)
Prepares students for evidence based practice in sport and exercise psychology. The evaluative approach to appraising the research literature will prepare the students to judge evidence on: 1) accuracy and validity of measures for the evaluation of change; 2) monitoring effectiveness of sport psychology interventions; 3) reporting of effectiveness and evaluation of practice in performance planning. Based on case scenarios, students will be required to formulate the key question(s), rapidly search literature databases, perform a critical appraisal of the evidence, and describe application of the evidence in a sport and exercise psychology context to develop the skills necessary to implement evidence-based practice in their careers. Prerequisites: ESSG 51200; ESSG 51300. (U,Y) 3 Credits

ESSG 60200 Diversity in Sport and Exercise (NLA)
Provides students with the foundations to develop the skills needed to practice as competent and culturally alert sport and exercise psychology consultants, coaches, or in other sport and exercise related professions. Students will explore issues and trends related to culture, such as ethnicity, race, nationality, gender, sexual orientation abilities/disabilities, immigrant dynamics, and socioeconomic factors which influence working/helping relationships, process, and intervention outcomes. Students will engage in self-exploration around their own cultural/race identity and their responses to issues of diversity including bias, oppression, discrimination and the role of privilege. Prerequisites: ESSG 51400. (U,Y) 3 Credits

ESSG 61000 Survey of Statistical Methods
Survey of modern statistical techniques. Descriptive statistics: use of scales, measures of central tendency and dispersion, organization of data, and correlations. Inferential statistics: parametric and nonparametric methods. May include a laboratory component. Required. (S, Y) 3 Credits

ESSG 61100 Research Methods
Introduction to the research process. Consideration and analysis of each type of research (e.g., philosophical-historical, descriptive, and experimental). Development of library and writing skills, use of research tools for data collection and analysis, and interpretation of data. Required. (F, Y) 3 Credits

ESSG 61200 Leadership in Exercise and Sport (NLA)
Examines the importance of developing effective individual, team, and corporate sport leadership. Emphasis is placed on assessing and enhancing leadership qualities, developing strategies for building influential and effective leadership personnel, mentoring (identifying, nurturing, and equipping) leaders, and understanding situational, transformational, charismatic, and servant leadership. Material is presented via small group, seminar, lecture, and student-taught workshop and student-based (cooperative learning) discussion formats. (SU, Y) 3 Credits

ESSG 61400 Ethics & Professional Practice Issues in Sport and Exercise Psychology (NLA)
Addresses the ethical standards of professional practice in SEP and various related issues pertinent to professional and ethical practice in sport psychology. Topics include clarification of a sport psychology consultant's role, boundaries of competency, AASP and APA ethics code guidelines, Certified Mental Performance Consultant (CMPC) certification requirements, ethical responsibilities associated with working with diverse populations, and ethical use of psychological tests and interventions and research/evaluation practices. (S,Y) 3 Credits

ESSG 61600 Applied Counseling in Sport Psychology (NLA)
Provides students the opportunity to develop their own personal consulting style and emphasizes advanced consulting skills. Students learn to combine mental training and counseling techniques while learning advanced group leading/counseling skills. Students are given the opportunity to practice through various role plays and class discussions of case studies. Several methods of counseling and consulting are introduced that can be used with athletes including Motivational Interviewing and Solution Focused Brief Techniques. Prerequisite: ESSG 51400. (U,Y) 3 Credits

ESSG 61800 Sport and Exercise Psychology Practicum I (NLA)
Provides an introductory experience in the delivery of mental training services in sport and exercise settings. Emphasis will be placed on the application of advanced theories and the practice of behavior change in sport and exercise, while simultaneously engaged in CMPC mentored independent work in real life sport, exercise and performance based settings. Both individual and group (team) interventions will be mentored/supervised and evaluated. Prerequisites: ESSG 51200; ESSG 51400; ESSG 51300; ESSG 61400. (F,Y) 3 Credits

ESSG 61900 Sport and Exercise Psychology Practicum II (NLA)
Provides and expands on the consulting experience of delivering mental training services in sport and exercise settings started in Sport Psychology Practicum I. Emphasis will be placed on the continued application of advanced theories and the practice of behavior change in sport and exercise, while simultaneously engaged in CMPC mentored independent work in real life sport, exercise and performance based settings. Both individual and group (team) interventions will be mentored/supervised and evaluated. May be repeated for a total of no more than six credits. Prerequisites: ESSG 61800. (F,S) 1-6 Credits
ESSG 62000 Thesis I
Open only to qualified and preapproved students who are preparing a proposal for an original scholarly thesis. Conducted on a conference basis with the thesis adviser, the course culminates in a thesis proposal. The thesis proposal must gain approval of the thesis adviser, thesis committee, and the graduate chair. Guidelines are available from the office of the graduate chair. The completed thesis must gain departmental and graduate office approval. Required for thesis plan. 3 Credits

ESSG 62100 Thesis II
Open only to qualified and preapproved students who are continuing to work on a scholarly thesis. Conducted on a conference basis with the thesis adviser. Guidelines are available from the office of the graduate chair. The completed thesis must gain approval of the thesis adviser, graduate chair, and the graduate dean. Pass/fail only. Required for thesis plan. Prerequisites: ESSG 62000 and approval of thesis adviser and graduate chair. This includes one to three credits repeated for a required total of three credits of ESSG 62100. 1-3 Credits

ESSG 63000 Independent Research
Student works in close cooperation with a graduate faculty member in a self-directed study, problem solving, or research investigation. Topic, proposal, and a design statement must be approved in advance by the sponsoring professor and graduate chair. This includes one to three credits per course that may be repeated for a total of no more than six credits of independent study courses (ESSG 63000 and ESSG 63100). (W,SU) 1-3 Credits

ESSG 63100 Independent Reading
Reading in the field, arranged between the student and a sponsoring graduate faculty member. Topic, proposal, and a design statement must be approved in advance by the sponsoring professor and graduate chair. This includes one to three credits per course that may be repeated for a total of no more than six credits of independent study courses (ESSG 63000 and ESSG 63100). (W,SU) 1-3 Credits

ESSG 63200-63201 Group Research (NLA)
Group participation in a research project. Small groups of students, under the direction of a faculty adviser, engage in the research process, from literature review, proposal development, submission of human subjects’ review documents, data collection, data analysis, and presentation of the data. (IRR) 1-3 Credits

ESSG 64000 Seminar
In-depth seminar on particular topics associated with academic concentrations offered in exercise and sport sciences. Students explore and critically examine current readings, philosophies, theories, and/or practices associated with a given topic and discuss potential applications of these concepts to actual or simulated situations. Students may present research findings, thesis proposals, or thesis defenses. Students must pass two semesters of this zero-credit seminar. Pass/fail only. (F, S) 0 Credit

ESSG 64500 Psychophysiology of Exercise and Sport (NLA)
Examines the interaction between psychological states and physiological function, particularly within the realm of exercise and sport. Specific topics include neurohormonal and physiological correlates of disordered eating behaviors, body image, perceived exertion, aggression, stress responses, overtraining, and other behaviors. The way exercise works as a mind-body medicine modality, including mental health and maintenance of cognitive function, is examined. Cognitive states, including arousal and intentionality, are examined as they influence physiological adaptations made during training. (W) 3 Credits

ESSG 64800 Strength and Conditioning: Theories, Mechanisms, and Applications (NLA)
Evidence-based presentation and discussion of methods practiced for improvement of strength and conditioning. Enhancement of athletic performance through new or accepted strength and conditioning techniques will be emphasized, though rehabilitative issues may also be addressed. Prerequisite: One course in exercise physiology. (Sum) 3 Credits

ESSG 66000 Internship
Supervised work experience in an agency related to the student’s concentration in the master’s degree program. Approval and support of a graduate faculty sponsor and the graduate chair are required, and prerequisite coursework may be needed. One to three credits, for a total of three credits. May be repeated for a total of no more than six credits. (F, S, SU) 1-3 Credits

ESSG 69900 Selected Seminars
Advanced courses on particular topics associated with academic concentrations offered in the exercise and sport sciences programs. Courses are offered at irregular intervals on topics chosen by faculty members or resulting from student requests. Course may be repeated for credit for selected topics on different subjects. Prerequisite: Permission of instructor. (IRR) 1-3 Credits

ESSG 74200 Advanced Techniques of Athletic Training
Consideration of the prevention, management, and rehabilitation of sports injuries. Essential concepts include anatomical basis of common injuries, injury assessment, and principles of therapeutic exercise for areas often injured. Laboratory time is included. Prerequisite: EXSS 24700 or equivalent, or permission of instructor. (SU) 3 Credits