

# Exercise and Sport Sciences

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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, physical education, and sport psychology. Thesis and non-thesis plans within the three areas allow students to match their learning experiences to individual academic strengths and career plans. A small student body and knowledgeable, interested faculty enhance program individualization, as does the opportunity to take courses at nearby Cornell University and to pursue independent study.

## Admission Requirements

Admission to these programs is granted on the basis of cumulative undergraduate grade point average, Graduate Record Examination scores, and recommendations. 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, physical education, or sport psychology). Applicants for concentrations in exercise physiology and physical education usually have undergraduate degrees in areas such as exercise science, physical education, athletic training, nursing, or biology. For the sport psychology concentration, students usually have undergraduate degrees in conceptually related content that emphasizes psychology.

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 ([sforzo@ithaca.edu](mailto:sforzo@ithaca.edu), 607-274-3359).

## Master of Science Degree with Thesis

(30 credits)

The master of science program with thesis serves a twofold purpose. First, it can be viewed as the initial step toward advanced study. Second, the program challenges those individuals who desire to advance their knowledge in exercise physiology, physical education, or sport psychology. Both theoretical and applied research are emphasized. The thesis is based on the student's independent research, but the work is guided, from selection of a topic through final revision, by a thesis committee. The completed thesis must receive the approval of both the department and the dean of graduate studies.

Students enrolled in the thesis option who have completed all coursework except the thesis will be required to enroll in at least one credit of thesis each semester until they finish their degree. Students should work with their program advisers to plan an appropriate course and credit schedule. For international students this schedule will be reflected in the immigration paperwork.

**Graduation requirements** --- 24 credits of coursework and 6 credits of thesis are needed to complete this program. In addition,

the student must complete an oral examination in defense of the thesis. The thesis must be completed within the area of concentration.

**Oral examination** --- in order to be eligible for the oral examination in defense of the thesis, the student must have completed the required courses and have a cumulative GPA of 3.000 or higher for all graduate courses completed as part of the program. This includes graduate courses taken at Ithaca College, exchange courses at Cornell University, or approved transfer courses taken at other institutions.

## Thesis Plan Credits

665-61000	Survey of Statistical Methods	3
665-61100	Research Methods	3
665-62000	Thesis	6
665-71000	Computer Applications	3
	Area of concentration	9-12
	Electives	3-6
	Total	30

(The total may include up to 6 credits approved for transfer from other schools.)

## Master of Science Degree without Thesis

(36 credits)

The non-thesis plan is designed for those whose major objective in graduate study is to enhance their professional background in exercise and sport sciences, teaching, or coaching.

**Graduation requirements** --- a total of 36 credits (24 credits of required courses and 12 credits of electives) are needed to complete this program. In addition, the student must complete a written comprehensive examination.

**Written comprehensive examination** --- a written examination covering general knowledge of the field, research and statistical methods, and specific knowledge in the area of concentration constitutes the comprehensive examination for this degree program. In order to be eligible for the written comprehensive examination, the student must have completed the required courses and have a cumulative GPA of 3.000 or higher for all graduate courses completed as part of the program. This includes graduate courses taken at Ithaca College, exchange courses at Cornell University, or approved transfer courses taken at other institutions.

## Non-Thesis Plan Credits

665-55000	Contemporary Issues	3
665-61000	Survey of Statistical Methods	3
665-61100	Research Methods	3
665-71000	Computer Applications	3
	Area of concentration	12-15
	Electives	9-12
	Total	36

(The total may include up to 6 credits approved for transfer from other schools.)

### Area of Concentration

One of the unique characteristics of Ithaca College's plan of study is the opportunity to pursue an area of concentration, an experience reserved for doctoral study at many institutions. The student must complete 9-15 credits of courses approved by the adviser in one of three areas of concentration --- exercise physiology, physical education, or sport psychology. The concentration approach to graduate study is designed to provide depth to the program and also to provide specific future employment opportunities. Included in each of the concentrations is the possibility of independent study and internship to increase relevant and practical learning opportunities.

#### Concentration in Exercise Physiology

Exercise physiology is the study of the physiological responses and adaptations consequent to exercise. Through specific coursework, this concentration focuses on both the theoretical and applied/clinical aspects of exercise physiology. Students who want to emphasize theoretical learning are advised to pursue the thesis option while those with a clinical orientation should consider the non-thesis option with an internship. If desired, a student can have a more comprehensive experience by completing all prescribed coursework, thesis, and an internship. An objective of the exercise physiology concentration is to assist in preparation for registration as a clinical exercise physiologist and for external certification as a health/fitness instructor or exercise specialist through the American College of Sports Medicine. Students are actively encouraged to seek additional credentials of this nature.

Prerequisites for applicants to the exercise physiology concentration include completion of coursework in anatomy and physiology; biomechanics or kinesiology; exercise physiology; and statistics or tests and measurements.

Thesis plan students must take 12 credits and complete their thesis in this area of concentration. Students in the non-thesis plan must complete 15 credits in this area of concentration. All exercise physiology students are eligible for related internships. An internship is strongly encouraged for those following the non-thesis plan. Exercise physiology students may study special topics through 665-62000 Thesis, 665-63000 Independent Research, and 665-63100 Independent Reading.

#### Exercise Physiology Concentration Courses

##### Required

665-54000	Physiological Mechanisms of Exercise: Cellular Aspects
665-54200	Physiological Mechanisms of Exercise: Systemic Aspects
665-54400	Multidimensional Assessment of Physical Function
665-54600	Graded Exercise Testing and Exercise Prescription
665-54800*	Exercise for Disease Intervention and the Older Adult

##### Elective

665-51200	Psychological Perspectives of Sport
665-66000	Internship

665-74200      Advanced Techniques of Athletic Training

\*Required for non-thesis option; recommended for thesis plan

#### Concentration in Physical Education

This concentration focuses on the application of instructional theories, teaching models, and curriculum design to maximize teaching and learning effectiveness. A "theory into practice" approach is utilized in this concentration. Videotaping, small group discussions, and formal and informal sessions on campus and in area schools provide opportunities for practical applications. Teachers seeking New York State K-12 certification typically select this concentration, but must meet all state requirements before being licensed. Not all state requirements are met by this program.

Applicants for the physical education concentration need to show evidence of completion of coursework in anatomy, biomechanics or kinesiology, and physiology.

Thesis plan students must take 9 credits and complete their thesis in the area of concentration. Students in the non-thesis plan must complete 12 credits in the area of concentration.

#### Physical Education Concentration Courses (Required)

665-52200	Analysis of Teaching and Coaching Behavior
665-52300	Strategies for Teaching
665-52400	Curriculum Design and Analysis
665-53000	Supervision of Physical Education

#### Concentration in Sport Psychology

The primary focus of this concentration is on the psychological factors that influence sport participation and performance. Topics are derived from clinical, developmental, educational, experimental, and social psychology and also from the basic understanding of sport and its varied task demands. Emphasis is on application, description, explanation, and prediction of parameters of sport participation and performance. Applicants for the sport psychology concentration need to show evidence of completion of coursework in conceptually relevant content areas.

Thesis plan students must take 9 credits and complete their thesis in the area of concentration. Students in the non-thesis plan must complete 12 credits in the area of concentration.

#### Sport Psychology Concentration Courses

##### Required

665-51200	Psychological Perspectives of Sport
665-51300	Psychological Applications to Sport Performance
665-51400	Counseling Student-Athletes
665-51500*	Effective Team Building
665-51600*	Motivation for Superior Performance

\*Required for non-thesis option; recommended for thesis plan.

##### Elective

665-51700	Stress Management
665-66000	Internship

#### Academic Warning and Dismissal

The graduate program in exercise and sport sciences follows the Division of Graduate Studies policies regarding academic warning and academic dismissal. Students on academic warning are not

permitted to enroll in thesis, independent research, or independent reading courses.

### Academic Advising

The chair of the graduate program in exercise and sport sciences serves as the academic adviser for all students enrolled in the program. Students writing a thesis select, with approval of the chair, a thesis adviser and reader from among the graduate faculty in exercise and sport sciences.

### Pass/Fail Option

All graduate courses must be taken for a letter grade. There is no pass/fail option for graduate courses in exercise and sport sciences.

### Graduate Assistantships

A limited number of assistantships are available for full-time matriculated graduate students and for admitted degree candidates. The assistantships include a scholarship, which is applied to the tuition bill, and a taxable salary for carrying out assigned duties. Students must have an undergraduate cumulative GPA of 3.000 or higher in order to be considered for assistantships. Assistantships are typically awarded on a two-semester basis and involve 8-15 hours per week of duties and responsibilities arranged and supervised by a faculty member. Specific areas for assistantships include: wellness clinic and adult fitness center; programs in anatomy, athletic training, biomechanics, computer applications and statistics, exercise physiology, kinesiology, physiology, and recreational sports; coaching in men's and women's varsity athletic programs; and teaching supervision. In any given year about 75% of the full-time matriculated graduate students in exercise and sport sciences hold assistantships.

## Course Descriptions

Courses may be offered in alternate semesters. Additional courses will be offered during the summer (see the summer sessions catalog). Other courses are offered only on demand.

### 665-51200 Psychological Perspectives of Sport

Focuses on personal and motivational variables important to the understanding and subsequent improvement of sport performance. Topics include anxiety, arousal, attention, cohesiveness, competition, motivation, communication, and personality dynamics. 3 credits.

### 665-51300 Psychological Applications to Sport Performance

Variety of psychological concepts related to the enhancement of sport performance. The course is conducted as a seminar emphasizing participant interaction. Small group format is used in developing a mental training program (MTP) for application when working with and consulting student-athletes. 3 credits.

### 663-51400 Counseling Student-Athletes

Introduction to many areas of study within the sport counseling realm. 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. 3 credits.

### 665-51500 Effective Team Building

Focuses on an understanding of people and the interpersonal communications and leadership skills necessary for effective and cohesive team units. Barriers to change and conflict resolution are discussed. 1 credit. (Summer)

### 665-51600 Motivation for Superior Performance

Focuses on an understanding of motivation and its importance to performance. Various motivational approaches are discussed, with emphasis on goal setting and attainment. 2 credits. (Summer)

### 665-51700 Stress Management

An overview of the nature and physiology of stress and the various approaches commonly used to manage stress. These approaches include relaxation techniques, yoga, meditation, cognitive restructuring, assertiveness training, conflict resolution, social engineering, communication skills, leisure counseling, biofeedback, values clarification, and time management techniques. This course also presents guidelines for developing stress management programs in the workplace. 3 credits.

### 665-52200 Analysis of Teaching and Coaching Behavior

The use of systematic observation techniques to observe and modify teachers' and coaches' behaviors. Overview of the most widely used observation systems in teaching and coaching and guidelines for their use. Practical applications of systematic observation in professional preparation programs, in-service education, and coaching. Videotaping, small group discussions, and informal practice sessions provide opportunities for actual experience in the use of systematic observation techniques. 3 credits.

### 665-52300 Strategies for Teaching

Examines instructional theories and models of teaching while focusing on practical applications that can lead to the improvement of teaching in physical education. Teaching of physical education is analyzed in context with various teaching approaches, current humanizing influences, and shared decision making principles. Content endorses a "theory into practice" approach to teacher effectiveness. A practical approach to research findings enables the student to evaluate teaching effectiveness, teacher-student relationships and interaction, various teaching approaches, and class structures. Videotaping, group dynamics, small group discussions, and informal practice sessions are employed. 3 credits.

### 665-52400 Curriculum Design and Analysis

A study of curricular designs, educational aims and objectives, learning experiences and activities, and curricular evaluations in education in general and physical education specifically. Emphasis is on current trends in the curriculum. 3 credits.

### 665-53000 Supervision of Physical Education

Principles of supervision and the function of the supervisor as a responsible leader in improving instruction in physical education. Topics include types and means of supervision, staff relationships, teaching assignments, observing instruction, supervisory conferences, and teachers' meetings. 3 credits.

### 665-54000 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.

### 665-54200 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. 3 credits.

**665-54400 Multidimensional Assessment of Physical Function**

Team-taught survey of aspects of 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. 3 credits.

**665-54600 Graded Exercise Testing and Exercise Prescription**

Techniques for quantifying and prescribing exercise using a variety of ergometers for improvement of cardiovascular health and fitness. Normal and abnormal electrocardiographic responses to exercise are discussed in detail. Completion of both written and practical requirements assists in preparation for examination by the American College of Sports Medicine. 3 credits.

**665-54800 Exercise for Disease Intervention and the Older Adult**

Focuses on the usefulness of exercise in disease prevention and rehabilitation and as an effective intervention in the aging process. Cardiac, pulmonary, and renal pathologies are discussed along with diabetes, hypertension, obesity, and other disorders. Details for evaluating functional status and prescribing exercise programs for those conditions are discussed. 3 credits. (Summer)

**665-55000 Contemporary Issues**

In-depth reading focused on critical thinking with regard to controversial issues in physical education, education, and athletics. Emphasis is on the recognition, discussion, and systematic analysis of issues of particular interest to the class members. Required for non-thesis plan. 3 credits.

**665-61000 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. Prerequisites: 665-7100 or permission. Required. 3 credits.

**665-61100 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. 3 credits.

**665-62000 Thesis**

Open only to qualified students who are preparing a preapproved independent scholarly thesis. Conducted on a conference basis with

the thesis adviser. Guidelines are available from the graduate chair. The completed thesis must gain departmental and graduate office approval. Required for thesis plan. 1-6 credits.

**665-63000 Independent Research**

Student works in close cooperation with a professor in self-directed study, problem solving, or research investigation. Topic and proposal must be approved in advance by the sponsoring professor and graduate chair. A final written report in the approved form is required. 1-3 credits per course.

**665-63100 Independent Reading**

Reading in the field, arranged between the department and the student. May be related to research in progress. The topic and proposal must be approved in advance by the sponsoring professor and graduate chair. 1-3 credits.

**665-66000 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. 1-3 credits for a total of 3 credits.

**665-69900 Selected Seminars**

In-depth seminars on particular topics associated with academic concentrations offered in the exercise and sports sciences programs. Students, together with instructors, 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 are encouraged to repeat the Selected Seminars, but must select a different seminar each time. Elective.

**665-71000 Computer Applications in Exercise and Sport Sciences**

Acquaints students with applications in three computer environments: the IBM PC, the VAX, and the Macintosh. Students complete assignments in word processing, statistical analysis, and special applications in each environment. Other assignments cover website development, graphics, spreadsheets, and databases. Class discussions also include computer interfaces with laboratory equipment, innovative computer applications, and computer ethics. Required. 3 credits.

**665-74200 Advanced Techniques of Athletic Training**

Consideration of 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. Prerequisites: 663-24700 or equivalent, or permission of instructor.