

MASTER OF SCIENCE (M.S.) MAJOR IN EXERCISE SCIENCE (THESIS OPTION)

Major Program

Students seeking a Master of Science (M.S.) degree with a major in Exercise Science will appreciate the value and importance of research-based literature and have the critical thinking, research, and technical skills to:

1. understand research-based literature;
2. use innovative approaches to problem solving;
3. successfully pursue a doctoral degree in exercise science or related discipline;
4. work in athletic, clinical (e.g., cardiopulmonary rehabilitation and diagnostic testing), educational, and fitness settings; and
5. sit for advanced professional certifications (e.g., the American College of Sports Medicine Certified Clinical Exercise Specialist, Certified Health Fitness Specialist, Certified Strength and Conditioning Specialist, or Registered Clinical Exercise Physiologist).

Application Requirements

The items listed below are required for admission consideration for applicable semesters of entry during the current academic year. Submission instructions, additional details, and changes to admission requirements for semesters other than the current academic year can be found on The Graduate College's website (<http://www.gradcollege.txstate.edu>). International students should review the International Admission Documents webpage (<http://mycatalog.txstate.edu/graduate/admission-documents/international>) for additional requirements.

- completed online application
 - \$55 nonrefundable application fee
- or
- \$90 nonrefundable application fee for applications with international credentials
 - baccalaureate degree from a regionally accredited university
 - official transcripts from **each institution** where course credit was granted
 - minimum 2.75 GPA in the last 60 hours of undergraduate course work (plus any completed graduate courses)*
 - GRE not required*
 - resume/CV
 - statement of purpose (approximately 500 words, typed and double-spaced) addressing the following:
 - professional goals
 - reasons for pursuing education and training in physical education
 - summary of major strengths and weaknesses with respect to being admitted into the program
 - three letters of recommendation (including at least two academic references) regarding professional competence and character

TOEFL or IELTS Scores

Non-native English speakers who do not qualify for an English proficiency waiver:

- official TOEFL iBT scores required with a 78 overall
- official IELTS (academic) scores required with a 6.5 overall and
 - minimum individual module scores of 6.0

This program does **not** offer admission if the scores above are not met.

*Additional Information

If the last-60-hours GPA is 3.0 or below, the student must submit the following:

- official GRE (general test only) with competitive scores in the verbal reasoning and quantitative reasoning section.

(Effective Spring 2020, if the last-60-hours GPA is below 3.0, the GRE is not required.)

Degree Requirements

The Master of Science (M.S.) degree with a major in Exercise Science requires 36 semester credit hours, including a thesis.

As background prerequisites, an exercise science major is expected to have a minimum of 9 semester hours of exercise science course work on the bachelor's degree. Students who do not have these hours may be required to complete leveling courses.

Course Requirements

Code	Title	Hours
Required Courses		
ESS 5304	Motor Learning and Performance	3
ESS 5309	Biomechanics for Exercise & Sports Science	3
ESS 5346	Research Methods in Health and Human Performance	3
ESS 5356	Applied Statistics in Health and Human Performance	3
Choose 3 hours from the following:		3
ESS 5306	Advanced Exercise Physiology	
ESS 5310	Cardiopulmonary Exercise Physiology	
ESS 5311	Applied Neuromuscular and Skeletal Muscle Physiology	
Prescribed Electives		
Choose 12 hours from the following:		12
ESS 5110	Research Seminar (May be repeated twice)	
ESS 5305	Advanced Fitness Assessment and Exercise Prescription	
ESS 5306	Advanced Exercise Physiology	
ESS 5307	Advanced Resistance Training and Conditioning	
ESS 5308	Physical Activity, Disease Prevention and Treatment	
ESS 5310	Cardiopulmonary Exercise Physiology	
ESS 5311	Applied Neuromuscular and Skeletal Muscle Physiology	
ESS 5322	Inclusion and Diversity in Physical Activity and Sport	
ESS 5344	Improving Instruction in Physical Activity, Sport, Clinical, & Community Settings	

ESS 5347	Independent Study in Exercise Science	
ESS 5353	Curriculum Design, Implementation and Evaluation in Diverse Physical Activity Settings	
ESS 5354	Developmental Sports Education: Youth Participants	
ESS 5355	Developmental Sports Education: High-Level Athletes and Coaching Effectiveness	
ESS 5398	Internship in Exercise and Sports Science	
	or ESS 5698 Internship in Exercise and Sports Science	
Prescribed Electives		
Choose 3 hours from the following:		3
AT 5310	Proprioception and Neuromuscular Control in Rehabilitation	
AT 5311	Biomechanics of Musculoskeletal Injury	
BIO 5441	Cellular Physiology	
NUTR 5302G	Pediatric Obesity	
NUTR 5364	The Science of Nutrition and Exercise	
NUTR 5366	Nutrient Metabolism I	
PH 5321	Advanced Health Behavior Theory	
PHIL 5322	Professional Ethics	
PHIL 5326	Philosophy and Sport	
PHIL 5327	Medical Ethics and Bio-ethics	
PSY 5335	Foundations of Health Psychology	
Thesis		
ESS 5399A	Thesis	3
Choose a minimum of 3 hours from the following:		3
ESS 5199B	Thesis	
ESS 5299B	Thesis	
ESS 5399B	Thesis	
ESS 5599B	Thesis	
ESS 5999B	Thesis	
Total Hours		36

Comprehensive Examination Requirements

All candidates for graduate degrees must pass one or more comprehensive examinations.

If a student elects to follow the thesis option for the degree, a committee to direct the written thesis will be established. The thesis must demonstrate the student's capability for research and independent thought. Preparation of the thesis must be in conformity with the *Graduate College Guide to Preparing and Submitting a Thesis or Dissertation*.

Thesis Proposal (http://www.gradcollege.txstate.edu/docs/Thesis_Diss_Guide.pdf)

The student must submit an official Thesis Proposal Form (<http://www.gradcollege.txstate.edu/forms.html>) and proposal to his or her thesis committee. Thesis proposals vary by department and discipline. Please see your department for proposal guidelines and requirements. After signing the form and obtaining committee members' signatures, the graduate advisor's signature if required by the program and the

department chair's signature, the student must submit the Thesis Proposal Form with one copy of the proposal attached to the dean of The Graduate College for approval before proceeding with research on the thesis. If the thesis research involves human subjects, the student must obtain exemption or approval from the Texas State Institutional Review Board prior to submitting the proposal form to The Graduate College. The IRB approval letter should be included with the proposal form. If the thesis research involves vertebrate animals, the proposal form must include the Texas State IACUC approval code. It is recommended that the thesis proposal form be submitted to the dean of The Graduate College by the end of the student's enrollment in 5399A. Failure to submit the thesis proposal in a timely fashion may result in delayed graduation.

Thesis Committee

The thesis committee must be composed of a minimum of three approved graduate faculty members.

Thesis Enrollment and Credit

The completion of a minimum of six hours of thesis enrollment is required. For a student's initial thesis course enrollment, the student will need to register for thesis course number 5399A. After that, the student will enroll in thesis B courses, in each subsequent semester until the thesis is defended with the department and approved by The Graduate College. Preliminary discussions regarding the selection of a topic and assignment to a research supervisor will not require enrollment for the thesis course.

Students must be enrolled in thesis credits if they are receiving supervision and/or are using university resources related to their thesis work. The number of thesis credit hours students enroll in must reflect the amount of work being done on the thesis that semester. It is the responsibility of the committee chair to ensure that students are making adequate progress toward their degree throughout the thesis process. Failure to register for the thesis course during a term in which supervision is received may result in postponement of graduation. After initial enrollment in 5399A, the student will continue to enroll in a thesis B course as long as it takes to complete the thesis. Thesis projects are by definition original and individualized projects. As such, depending on the topic, methodology, and other factors, some projects may take longer than others to complete. If the thesis requires work beyond the minimum number of thesis credits needed for the degree, the student may enroll in additional thesis credits at the committee chair's discretion. In the rare case when a student has not previously enrolled in thesis and plans to work on and complete the thesis in one term, the student will enroll in both 5399A and 5399B.

The only grades assigned for thesis courses are PR (progress), CR (credit), W (withdrew), and F (failing). If acceptable progress is not being made in a thesis course, the instructor may issue a grade of F. If the student is making acceptable progress, a grade of PR is assigned until the thesis is completed. The minimum number of hours of thesis credit ("CR") will be awarded only after the thesis has been both approved by The Graduate College and released to Alkek Library.

A student who has selected the thesis option must be registered for the thesis course during the term or Summer I (during the summer, the thesis course runs ten weeks for both sessions) in which the degree will be conferred.

Thesis Deadlines and Approval Process

Thesis deadlines are posted on The Graduate College (<http://www.gradcollege.txstate.edu>) website under "Current Students." The completed thesis must be submitted to the chair of the thesis committee on or before the deadlines listed on The Graduate College website.

The following must be submitted to The Graduate College by the thesis deadline listed on The Graduate College website:

1. The Thesis Submission Approval Form bearing original (wet) and/or electronic signatures of the student and all committee members.
2. One (1) PDF of the thesis in final form, approved by all committee members, uploaded in the online Vireo submission system.

After the dean of The Graduate College approves the thesis, Alkek Library will harvest the document from the Vireo submission system for publishing in the Digital Collections database (according to the student's embargo selection). **NOTE: MFA Creative Writing theses will have a permanent embargo and will never be published to Digital Collections.**

While original (wet) signatures are preferred, there may be situations as determined by the chair of the committee in which obtaining original signatures is inefficient or has the potential to delay the student's progress. In those situations, the following methods of signing are acceptable:

- signing and faxing the form
- signing, scanning, and emailing the form
- notifying the department in an email from their university's or institution's email account that the committee chair can sign the form on their behalf
- electronically signing the form using the university's licensed signature platform.

If this process results in more than one document with signatures, all documents need to be submitted to The Graduate College together.

No copies are required to be submitted to Alkek Library. However, the library will bind copies submitted that the student wants bound for personal use. Personal copies are not required to be printed on archival quality paper. The student will take the personal copies to Alkek Library and pay the binding fee for personal copies.

Master's level courses in Health and Human Performance: ESS

Courses Offered

Exercise Science Specialization (ESS)

ESS 5101. Graduate Assistant Development.

This course is required of all graduate teaching and instructional assistants in the department. This course provides regular in-service and planned periodic evaluations of instructional and professional responsibilities. This course does not earn graduate degree credit.

1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.

Course Attribute(s): Graduate Assistantship|Exclude from Graduate GPA

Grade Mode: Leveling/Assistantships

ESS 5110. Research Seminar.

The focus of this course engages students in research and professional development in Exercise and Sports Science. This seminar will allow students to gain exposure to a variety of scholarly activities in an interdisciplinary setting.

1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.

Course Attribute(s): Exclude from 3-peat Processing

Grade Mode: Standard Letter

ESS 5117. Laboratory in Exercise Physiology.

Students in this leveling laboratory course perform experiments that highlight the physiological responses to exercise. The course introduces students to basis techniques in the assessment of health and human performance, including the assessment of maximal oxygen consumption, body composition, anaerobic power and capacity, muscular fitness, movement economy, and dietary intake. This course does not earn graduate degree credit. Prerequisite: BIO 2430 or equivalent. Co-requisite: ESS 5317.

1 Credit Hour. 0 Lecture Contact Hours. 2 Lab Contact Hours.

Course Attribute(s): Exclude from Graduate GPA|Leveling

Grade Mode: Leveling/Assistantships

ESS 5199B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

1 Credit Hour. 1 Lecture Contact Hour. 0 Lab Contact Hours.

Grade Mode: Credit/No Credit

ESS 5201. Graduate Assistant Development.

This course is required of all graduate teaching and instructional assistants in the department. This course provides regular in-service and planned periodic evaluations of instructional and professional responsibilities. This course does not earn graduate degree credit.

2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Graduate Assistantship|Exclude from Graduate GPA

Grade Mode: Leveling/Assistantships

ESS 5299B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

2 Credit Hours. 2 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Credit/No Credit

ESS 5304. Motor Learning and Performance.

This course is designed to provide students the foundation for understanding the principles involved in enhancing motor skill acquisition, and physiological, neurological, and psychological factors affecting motor learning and performance. Inquiry is made into the various motor learning theories and concepts.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5305. Advanced Fitness Assessment and Exercise Prescription.

This course provides an intensive study of current scientifically based exercise testing and prescription procedures. Students will learn how to evaluate fitness and prescribe exercise through laboratory experiences.

3 Credit Hours. 2 Lecture Contact Hours. 1 Lab Contact Hour.

Grade Mode: Standard Letter

ESS 5306. Advanced Exercise Physiology.

This advanced course will provide students with a thorough understanding of the acute responses to exercise and the physiological adaptations that occur in response to exercise training. Additional topics to be covered include environmental influences, aging, and sex differences.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5307. Advanced Resistance Training and Conditioning.

This course will include the development, instruction, and evaluation of resistance training exercises and programs for diverse populations and settings. Physiological and mechanical principles related to resistance training will be applied to study human performance, injury prevention, and rehabilitation.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5308. Physical Activity, Disease Prevention and Treatment.

This course will provide students with opportunities to examine the role of physical inactivity in the development of chronic diseases and the benefits of activity in prevention efforts. A special emphasis will be placed on activity assessment and intervention research.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5309. Biomechanics for Exercise & Sports Science.

Review of current research and research techniques in the biomechanics of exercise and sport science. Students will develop skills in reviewing, planning, and conducting biomechanical research.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5310. Cardiopulmonary Exercise Physiology.

The course will provide students with a thorough understanding of the structure, function, neural mechanisms, and integrated responses of the human cardiopulmonary system to acute and chronic exercise. In addition, basic cardiopulmonary pathology, pharmacology, and electrocardiography will be introduced.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5311. Applied Neuromuscular and Skeletal Muscle Physiology.

The course will provide students with a thorough understanding of the structure and function of neuromuscular and skeletal muscle physiology. This course will examine mechanisms that regulate skeletal muscle force production and human performance in response to acute and chronic exercise. In addition, advanced laboratory techniques will be introduced.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5317. Exercise Physiology.

This leveling course provides an overview of the acute and chronic physiological responses to exercise. Emphasis is on muscle bioenergetics, muscle contractile properties, optimizing human performance through training and supplementation, as well as cardiopulmonary and endocrine responses to exercise. This course does not earn graduate degree credit. Prerequisite: BIO 2430 or equivalent. Corequisite: ESS 5117.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from Graduate GPA|Lab Required|Leveling

Grade Mode: Leveling/Assistantships

ESS 5320. Biomechanics.

This leveling course provides an introduction to the mechanical foundations of anatomical function and human movement. Qualitative and quantitative biomechanical analyses of human movement are introduced to inform the prescription of technique, equipment, and training interventions. This course does not earn graduate degree credit. Prerequisite: BIO 2430 or equivalent with a grade of "D" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from Graduate GPA|Leveling

Grade Mode: Leveling/Assistantships

ESS 5322. Inclusion and Diversity in Physical Activity and Sport.

This course is designed to prepare physical activity and sport educators with knowledge, skills, and strategies to create inclusive learning environments. Culturally responsive teaching strategies that best accommodate the individual needs of children, adolescents, and adults, with diverse ethnic, racial, cultural, socio-economic, physical, and cognitive needs will be emphasized.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5329. Motor Learning.

This leveling course provides students with an understanding of the physiological, neurological, and psychological factors affecting performance and acquisition of motor skills. Students will examine the structural components underlying the learning of motor skills and draw upon examples from sport, physical activities, and rehabilitation. This course does not earn graduate degree credit.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from Graduate GPA|Leveling

Grade Mode: Leveling/Assistantships

ESS 5344. Improving Instruction in Physical Activity, Sport, Clinical, & Community Settings.

This course is designed to enhance instructional skills for professionals working in educational, sport, clinical, and community settings. Students incorporate evidence-based instructional practices and assess teaching using systematic, reliable, and valid measures. Students will be able to apply course concepts to implement effective instruction in diverse venues.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5346. Research Methods in Health and Human Performance.

A study of research methods related to techniques for searching the professional research literature, understanding, planning, and conducting professional research projects, as well as development of skills for writing research proposals related to human performance.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5347. Independent Study in Exercise Science.

The course allows students to receive individualized instruction while working on a professional project with a supervising faculty member. This course will require students to enhance their writing, research, teaching, and/or presentation skills. Repeatable once for credit.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5353. Curriculum Design, Implementation and Evaluation in Diverse Physical Activity Settings.

This course is designed to explore evidence-based curricula across Exercise and Sport Science settings including, but not limited to clinical, strength and conditioning, community physical activity, and sports. Students will gain knowledge and understanding about the curriculum design process and program evaluation using current theory to practice models.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5354. Developmental Sports Education: Youth Participants.

This course is designed to provide sport educators with theory, research, and application strategies to implement developmentally appropriate sports programs for youth participants. Social, psychological, pedagogical, philosophical, and physical variables impacting youth in sport are examined. Emphasis is placed on promoting positive youth development by applying evidence-based practices.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5355. Developmental Sports Education: High-Level Athletes and Coaching Effectiveness.

This course is designed to provide sport educators with theory, research, and practical strategies to implement developmentally appropriate sports programs for high-level athletes. Psychological, social, and physical aspects related to athletes' success and well-being are examined. Research on coaching effectiveness is also explored with emphasis on applying evidence-based practices.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5356. Applied Statistics in Health and Human Performance.

A study of quantitative statistical methods for planning and conducting experimental and correlational research, as well as techniques for statistical data analysis and interpretation applicable to health and human performance.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5398. Internship in Exercise and Sports Science.

This 240-hour internship provides students with work-related experience with children, adults, older individuals, or athletes in exercise settings. Students are provided an opportunity to prescribe and supervise age- and fitness-appropriate exercise programs and perform exercise tests. Prerequisite: ESS 5306 with a grade of "C" or better.

3 Credit Hours. 0 Lecture Contact Hours. 20 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5399A. Thesis.

This course represents a student's initial thesis enrollment. No thesis course credit is awarded until the student has completed the entire thesis required in ESS 5399B. Prerequisites: ESS 5346 and ESS 5356 all with a grade of "C" or better.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Credit/No Credit

ESS 5399B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

3 Credit Hours. 3 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Credit/No Credit

ESS 5599B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

5 Credit Hours. 5 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Credit/No Credit

ESS 5624. Principles and Practices for Teaching Physical Education.

This is a leveling class for graduate students pursuing teaching certification in physical education. Particular emphasis is placed on methods of teaching physical education. This course does not earn graduate degree credit. Departmental Approval required.

6 Credit Hours. 6 Lecture Contact Hours. 0 Lab Contact Hours.

Course Attribute(s): Exclude from Graduate GPA|Leveling

Grade Mode: Leveling/Assistantships

ESS 5698. Internship in Exercise and Sports Science.

This full-time internship provides students with a minimum of 480 hours of field experience. Students will work with children, adults, older individuals, or athletes in exercise or health care settings, and prescribe and supervise age and fitness appropriate exercise programs and perform comprehensive health-related assessments.

6 Credit Hours. 0 Lecture Contact Hours. 40 Lab Contact Hours.

Grade Mode: Standard Letter

ESS 5999B. Thesis.

This course represents a student's continuing thesis enrollment. The student continues to enroll in this course until the completed thesis is submitted for binding. Prerequisite: ESS 5399A.

9 Credit Hours. 9 Lecture Contact Hours. 0 Lab Contact Hours.

Grade Mode: Credit/No Credit