MS in Nutrition and Exercise Physiology with Emphasis in Exercise Physiology

About the Program

The MS in Nutrition and Exercise Physiology with an emphasis in Exercise Physiology offers advanced training in the scientific and applied study of exercise, physical activity, and physical inactivity across the lifespan. This program prepares students for careers in research, healthcare, industry, and further professional or doctoral study by combining rigorous coursework with hands-on research and applied experiences.

Students gain in-depth knowledge of how exercise and lifestyle behaviors influence health, with a current research focus on understanding the mechanisms through which physical activity, nutrition, and sleep affect the development and prevention of obesity, type 2 diabetes, and cardiometabolic and cardiovascular diseases. Research spans both human clinical studies and established animal models, allowing discoveries to be translated directly into clinical, community, and applied settings.

Graduate students receive comprehensive training in:

- Laboratory and applied research methods
- Seminar presentation and scientific communication
- Scientific and grant writing
- Critical thinking and problem-solving

The program offers both thesis and nonthesis options, enabling students to tailor their graduate experience to align with their career goals. The nonthesis option emphasizes applied exercise physiology and professional preparation, while the thesis option provides immersive, faculty-mentored research experiences for those pursuing research-intensive careers or doctoral study.

Exercise Physiology faculty are actively engaged in developing new knowledge related to exercise training, exercise metabolism, obesity, and lifestyle interventions. A distinctive strength of the program is its emphasis on integrative lifestyle approaches—nutrition, physical activity, and sleep—to improve human health and prevent chronic, lifestyle-related diseases.

Graduate students benefit from the University of Missouri's strong culture of interdisciplinary research, with collaborative opportunities across campus, including partnerships with the College of Veterinary Medicine, School of Medicine, and other research centers. This collaborative environment enhances training and exposes students to diverse perspectives and methodologies.

The core curriculum is grounded in the biological sciences and includes coursework in exercise physiology, nutrition, biochemistry, and human physiology. Research experiences emphasize human-based studies, along with complementary animal models such as pig and rat models, providing a comprehensive understanding of exercise science from molecular mechanisms to whole-body and clinical outcomes.

Graduates of the Exercise Physiology emphasis are well prepared to emerge as skilled researchers, applied practitioners, and professional leaders dedicated to advancing human health through exercise and lifestyle science.

Degree Requirements

Students in the MS program in Nutrition and Exercise Physiology, Exercise Physiology emphasis will choose between two options for final completion: nonthesis (internship) or thesis. Students should indicate their preference on their application to the program. The course curriculum will be the same for both options, except for the thesis or internship. Students will complete a minimum of 36 credits of graduate coursework beyond the bachelor's degree. For a full explanation of the thesis/non-thesis options, see section below on Thesis/Non-Thesis Requirements or view the information on the program's website (https://cafnr.missouri.edu/academics/degrees-programs/nutrition-and-exercise-physiology-graduate-studies/).

Prerequisites courses for the program are a B or better in General Chemistry, Physiology, Human Anatomy and Physiology of Exercise. Biochemistry, Organic Chemistry and Nutrition are recommended.

Required Graduate Courses		
ESC_PS 7170	Introduction to Applied Statistics (or an equivalent statistics class)	3
NEP 7500	Research in Nutritional Sciences and Exercise Physiology (mandatory for thesis track; optional for internship track)	3
NEP 8087	Masters Seminar in Nutritional Sciences and Exercise Physiology	1
NEP 8090	Masters Research in Nutritional Sciences and Exercise Physiology	4
or NEP 8095	Internship in Exercise Physiology	
NEP 8125	Preventive and Therapeutic Exercise Physiology	3
NEP 8127	Advanced Physiological Assessment and Exercise Prescription	3
NEP 8220	Cardiovascular Disease and Exercise	3
NEP 8850	Advanced Exercise Physiology	3
NEP 8860	Exercise Endocrinology	3
Must take a minimum of 2 of the following courses:		
NEP 8030	Etiology of Obesity	3
NEP 7970	PANHP Capstone: Sports Nutrition	3
NEP 7340	Human Nutrition II Lecture	3
NEP 8340	Nutrition in Human Health	3
Suggested Electives (other classes may be accepted)		
BIOCHM 7270	Biochemistry	3
NEP 7200	Sports Performance and Conditioning	3
NEP 7500	Research in Nutritional Sciences and Exercise Physiology	3
NEP 8870	Exercise Metabolism	3

A public health certificate can be obtained if the 4 electives are taken in Public Health (NEP 8340 counts as one of these courses). Other certificiates could also possibly work with this masters program.

Thesis/Non-Thesis Requirements

Non-Thesis/Internship Option

This option is oriented toward improving a practitioner’s professional proficiency in the applied aspects of exercise physiology. The program of study will include courses and learning experiences that will develop the student’s knowledge in the theoretical aspects of exercise physiology.

The degree requires a minimum of 36 hours of graduate credit, which includes completing an approved internship (300 hours minimum) which will provide them with experience in an applied or clinical setting. The student is responsible for identifying and securing the internship. Students selecting this option will graduate with some preparation for credentialing from organizations including the American College of Sports Medicine (ASCM) and the National Strength and Conditioning Association (NSCA). Completion of this degree as well as obtaining certification will prepare students for careers such as registered clinical exercise physiologists, strength and conditioning coaching, personal trainer or wellness coach, health/fitness instructor, as well as in other health professions. The program of study can be complimented with a certificate of public health. With this non-thesis option, students can complete the degree in 1.5 years if they choose.

Thesis Option

This option is research-oriented, focusing on designing and conducting research in exercise physiology. The program of study will include courses and learning experiences that will maximize a student's progress in developing lab skills and critical thinking that will enable the student to continue their education in a research-oriented area. The thesis option requires a minimum of 36 hours of graduate credit. A written thesis, based upon original research, that is the student's own work and that demonstrates a capacity for research and independent thought is required. In addition, the graduate student must defend their thesis research in a seminar that is open to the general faculty and students and to their thesis committee.

Admissions

Exercise Physiology Program Applicants must have a 3.0 undergraduate GPA.

TOEFL scores are required from international applicants. Entering MS students are expected to have a B or better in undergraduate training in biology, chemistry, anatomy/physiology, and exercise physiology.

It is also advantageous to have nutrition, organic chemistry and biochemistry, as it helps students in their required coursework. Courses should be taken at an accredited institution.

Applications to our graduate programs should be **submitted by February 15th**. While applications received after that date will still be considered, there is no guarantee that we will have space for additional students. Admission at the beginning of spring semester is possible but limited.

Minimum TOFEL Scores

Internet-based test (iBT)
100

GRE Scores are no longer required by the department

Complete instructions on the application process can be found on the programs website: NEP MS graduate program (https://cafnr.missouri.edu/academics/degrees-programs/nutrition-and-exercise-physiology-graduate-studies/)