

Ohio University

Division of Exercise Physiology
Master of Science | Research Track



M.S. Exercise Physiology
Exploration Guide



OHIO
UNIVERSITY

College of Health Sciences and Professions

Dedicated Faculty

Exercise Physiology Graduate Faculty

Paul Chase, PhD, RCEP, EIM-III

Assistant Clinical Professor
Office Phone: 740.593.4653
chasep@ohio.edu

Angela Hillman, PhD, EP-C

Assistant Professor
740.593.0153
hillman@ohio.edu

Cheryl Howe, PhD, CEP

Associate Professor
Office Phone: 740.593.2888
howec@ohio.edu

Sharon Rana, PhD, CEP, CSCS

Associate Professor
Office Phone: 740.593.9494
rana@ohio.edu

Jae Yom, PhD, CSCS

Assistant Professor
Office Phone: 740.593.0131
yom@ohio.edu

Dhiraj Vatttem, PhD

School of Applied Health
Sciences and Wellness, Director
740.593.0133
vatttem@ohio.edu

Ohio University is devoted to the intellectual and personal development of its students. As a student in the Master of Science Physiology of Exercise program, you will collaborate with caring and expert faculty and staff who will challenge you to excel in the classroom, in the laboratory, and as a professional. The student-focused and flexible program you will encounter at Ohio University will provide the educational expertise, professional insight, and empowerment to discover your own voice to become a leader in the field. Your exposure to faculty and student driven



research, an environment rich with technology, and a flexible curriculum provide endless opportunities to explore your personal interest.

Our Mission

Academic Diversity

A Rigorous and Immersive Education

The M.S. program uniquely prepares you to thrive in a professional career or academic setting. Our two-year program offers a flexible curriculum infused with research to provide the foundation to further understanding the scientific process. A culminating thesis provides you the forum to solidify your knowledge and answer a viable research questions.

Sample Course Sequence

Fall I

EXPH 6560 – Advanced Physiology of Exercise (3)
EXPH 6570 – Advanced Physiology of Exercise Lab (1)
EXPH 6080 – Research Methods (3)
BIOS 5420 – Principles of Physiology (4)
EXPH 5999 – Research Seminar (1)
EXPH 6950 -- Thesis
Elective*

Spring I

EXPH 5999 – Research Seminar (1)
Elective(s)*
EXPH 6950 – Thesis (1-4)

Fall II

EDRE 7200 (4) or PSY 6111(3) or ISE 5200 (4) or BIOS 6700 (3) – Statistics
Elective(s)*
EXPH 5999 – Research Seminar (1)
EXPH 6950 – Thesis (1-4)

Spring II

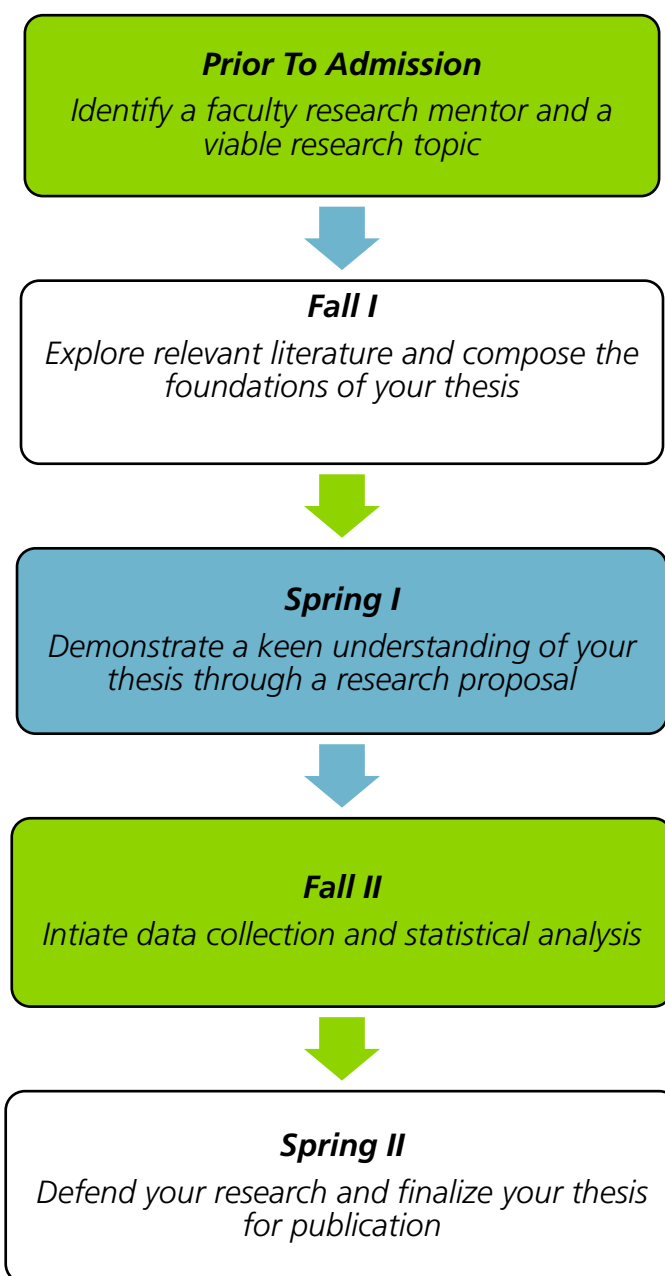
Elective(s)*
EXPH 5999 – Research Seminar (1)
EXPH 6950 – Thesis (1-4)

*Elective Courses (Additional options available)

EXPH 5160 – Resistance Training Theory and Application (3)
EXPH 5850 – Motor Development (2)
EXPH 5900 – Special Topics in Exercise Physiology (3)
EXPH 6160 – Advanced Resistance Training (3)
EXPH 6600 – Advanced Biomechanics (3)
BIOS 5500 – Principles of Endocrinology (3)
BIOS 5630 – Biological Chemistry (3)
NUTR 6600 – Nutrition for Sports and Fitness (3)
AT 6210 – Human Anatomy for Athletic Trainers (3)

Planning Your Path to Research Success

Within our challenging and supportive learning environment, you will collaborate with caring and expert faculty and staff to answer an innovative research question. As a capstone project, your thesis is where students and faculty engage each other, where everyday applications connect with pure research.



Experiential Learning

Immersing You in an Environment Rich with Experiences

Professional development is derived from the entirety of your graduate experience. At Ohio University, the lines separating the classroom and the laboratory are non-existent. The educational process is continual whether in a classroom, laboratory, or research environment.

Professional Enhancement

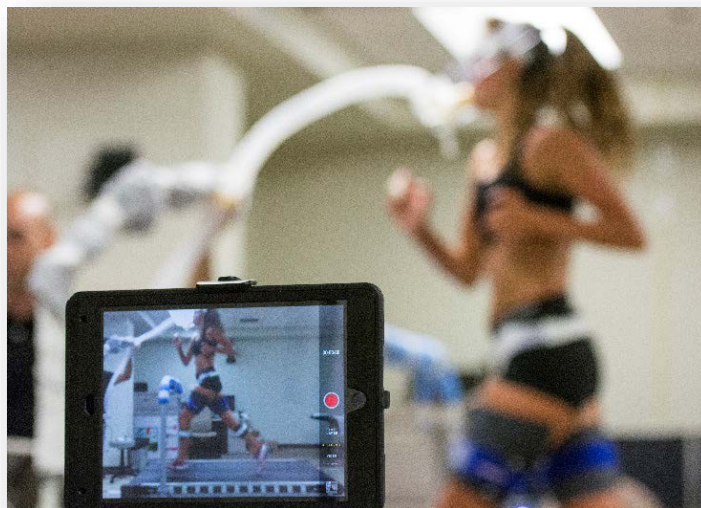
Professional enhancement provides you the ability to adapt in a changing professional landscape. Educational opportunities and certifications include, and are not limited to, the following:

- American Heart Association First Aid and CPR Instructor
- Blood Borne Pathogens
- Chemical Hygiene
- Research Compliance
- Research Ethics

Research and Technical Competency

Immersed in an environment rich with hands-on experiences and research viable equipment, you will be prepared upon graduation to make an impact. Newly renovated facilities, labs, and research spaces will provide you the opportunity to develop advanced technical skills. Our faculty facilitate guided research inclusive of, and not limited to:

- 3D Motion and Force Analysis
- Fuel Metabolism and Blood Chemistry Analysis
- Muscle Electromyography and Mechanomyography
- Wearable Technology, including Global Positioning Systems (GPS) and Accelerometry
- Cardiovascular Assessments, EKG and Echocardiography
- Indirect Calorimetry and Portable Indirect Calorimetry



Sample Thesis Projects

(click on the following title to read full publication)

Muscle Strength, Motor Units, and Aging

Kaya, Ryan D. 2013

Acute and Residual Glycemic Control Following Six Sessions of Repeat Cycle Sprint Interval Training in Apparently Healthy, but Sedentary Men

Applegate, Megan E. 2014

Validation of a Joint-Analysis Software, the Microsoft Kinect as a Real-Time Strength Training and Evaluation Tool

Frazier, Jacob L. 2017

Effects of an Empirically-Based Physical Activity Intervention Aimed to Increase Moderate-to-Vigorous Physical Activity and Improve Body Composition and Blood Pressure in Appalachian Children

Winner, Brett C. 2013

Admission Guidelines

Admission Requirements

Prospective Students will meet the following requirements for application:

- Bachelor's degree in exercise physiology or related field from an accredited institution
- A background in the following academic topics
 - Anatomy and Physiology
 - Exercise Physiology
 - Biology
 - Chemistry
 - Physics
 - Nutrition
 - Exercise Testing and Prescription
 - Kinesiology
 - Motor Learning/Development
- A competitive GPA (> 3.0 on a 4.0 scale)
- Satisfactory GRE scores (> 50th percentile)
- A forward focused statement of purpose
 - Describe career aspirations
 - Describe what role our program would play in your goals
 - Describe a specific faculty and research line of interest
- Resume or CV
- Three letters of recommendation
 - No less than two from an academic faculty member
- Complete additional Ohio University Graduate College requirements.
 - [Graduate College Admission Requirements](#)

Teaching and Funding Opportunities

Competitive awards are available annually to qualified students. Awards provide partial to full tuition funding along with a living stipend to support the academic year while at Ohio University. Awards provide graduate students the valuable opportunity to teach courses and laboratories independently, or



alongside of faculty.

More Information

For more information regarding the Research Track in the Master of Science in the Physiology of Exercise program, please contact the graduate coordinator.

Dr. Paul Chase

Division of Exercise Physiology
School of Applied Health Sciences and Wellness Ohio University
Grover E148
chasep@ohio.edu
740.593.4653

Application Deadlines

Application should be received in full by **February 15** for consideration of admission, financial aid, and graduate funding.

- Applications will be considered until *July 15* for a fall semester start date
- A spring start date may be feasible for students completing application no later than *November 1*
- International students should note additional requirements as outlined by the [Ohio University Graduate College](#)

Faculty Research Portfolio

Paul Chase, PhD, RCEP, EIM-III

Major research area(s): Cardiopulmonary responses to acute exercise and the epidemiology of exercise test responses in patients with chronic heart failure. More broadly, I am interested in the control of cardiopulmonary factors at rest and during exercise in patient groups with chronic disease and in the obese.

Select publications: ([click on the following title to read full publication](#))

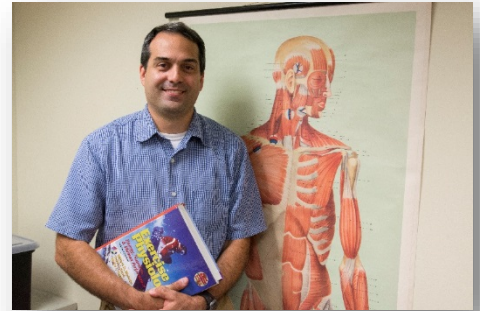
Variables measured during cardiopulmonary exercise testing as predictors of mortality in chronic systolic heart failure: Results from the HF-ACTION Trial.

Comparison of estimations versus measured resting oxygen consumption in patients with heart failure and reduced ejection fraction undergoing right heart catheterization.

The obesity paradox in chronic heart failure: What does it mean?

Effects of respiratory exchange ratio on the prognostic value of peak oxygen consumption and ventilatory efficiency in patients with systolic heart failure.

Prognostic usefulness of the functional aerobic reserve in patients with heart failure.



Angela Hillman, PhD, EP-C

Major research area(s): Stress response to exercise in extreme environments and methods of reducing negative impact on the whole body and performance; sports nutrition and nutraceuticals, particularly the use of tart cherry and curcumin in reducing inflammation in athletes and clinical populations; time of day feeding, fasted exercise, gut hormones, and metabolism; cellular and oxidative stress in cardiopulmonary/at risk patients and how this is affected by changes in hydration status and environment.

Select publications: ([click on the following title to read full publication](#))

Exercise-induced dehydration with and without environmental heat stress results in increased oxidative stress.

Exercising in the Fasted State Reduced 24-Hour Energy Intake in Active Male Adults.

Ramp-incremented and RPE-clamped test protocols elicit similar VO₂max values in trained cyclists.

The effects of tart cherry juice with whey protein on the signs and symptoms of exercise-induced muscle damage following plyometric exercise.



Faculty Research Portfolio



Cheryl A. Howe, PhD, CEP

Major research area(s): Dose of physical activity required to prevent and treat childhood obesity and obesity-related diseases; evidence-based structured healthy lifestyle interventions implemented in school settings to correct the daily energy surplus related to childhood obesity. Development of techniques for measuring enjoyment and energy cost of free-play physical activity in children. Effects of physical fitness and activity habits on adolescent obesity in Ecuador.

Select publications: (click on the following title to read full publication)

METS and accelerometry of walking in older adults: standard versus measured energy cost.

The physical activity energy cost of the latest active video games in young adults.

A recess intervention to promote moderate-to-vigorous physical activity.

Classification accuracy of the wrist-worn GENE accelerometer during structured activity bouts: a cross-validation study.



Sharon Rana, PhD, CEP, CSCS

Major research area(s): Effect of fatigue and exercise on neuromuscular function specifically mechanomyographic (MMG) and electromyographic (EMG) signals; muscular performance with exercise intervention, exercise threshold estimations, and childhood growth/obesity studies.

Select publications: (click on the following title to read full publication)

METS and accelerometer output of walking in older adults: absolute vs relative methods.

Using a practical approach for determining the most effective stretching strategy in female college division I volleyball players.

Muscular adaptations in response to slow-speed versus traditional resistance-training regimens.

Faculty Research Portfolio

Jae Yom, PhD, CSCS

Major research area(s): Unanticipated events on lower extremity landing biomechanics during sport movements; postural control with idiopathic toe walking behaviors.

Select publications: (click on the following title to read full publication)

Does wearing a prophylactic ankle brace during drop landings affect lower extremity kinematics and ground reaction forces?

When efficacy beliefs affect team attributions: relationships between self- and collective efficacy beliefs and team attributions overtime.

The effects of a lateral in-flight perturbation on lower extremity biomechanics during drop landings.

