

KINESIOLOGY: EXERCISE PHYSIOLOGY, PH.D.

This is a named option in the Kinesiology, Ph.D. (<http://guide.wisc.edu/graduate/kinesiology/kinesiology-phd/>) For more information, please see our program website (<https://kinesiology.education.wisc.edu/academics/grad-program/>).

Exercise Physiology is the study of the biological responses and adaptations to acute and chronic exercise. Research and graduate training at UW-Madison focuses on elucidating: 1) the physiological, biochemical and molecular mechanisms underlying these processes and 2) the influence of exercise on health and disease.

Dr. Barnes focuses on how aging and exercise alters blood flow and blood pressure regulation. Her current projects focus on age-associated changes in cerebral blood flow, the sympathetic nervous system activity influences cerebral blood flow, and how these relate to the risk of cardiovascular disease and dementia. Dr. Diffie studies the regulation of contraction in skeletal and cardiac muscle and how this regulation is altered by perturbations such as exercise training, injury, or disease. Typical experiments involve measurement of contractile properties single skeletal muscle fibers and single cardiac myocytes and correlation of altered mechanical properties to changes in cell protein composition detected by biochemical and molecular biological techniques. Interaction with faculty and students from other departments (including Nutritional Sciences, Biochemistry, School of Medicine, and the Institute on Aging) is encouraged by ongoing collaborative research efforts. The research of William Schrage's laboratory is focused on how blood flow is regulated in muscle and brain circulations. Specifically, Dr. Schrage is interested in how acute exercise or environmental stress like hypoxia influences blood flow and how this is impacted by obesity and metabolic syndrome. He measures blood flow using state-of-the-art technology including ultrasound and MRI. A key approach is to use pharmacologic tools to understand how blood flow is controlled, and how obesity changes which mechanisms change the ability to regulate blood flow under stress.

The Exercise Physiology named option of the Ph.D. program is designed to prepare students for scholarly research and teaching. Students are prepared with advanced course work in Exercise Physiology along with supporting course work in Biochemistry, Physiology, Statistics, and other areas of Kinesiology (including Biomechanics, Motor Control and Behavior, and Sports Psychology). An important advantage of graduate study at UW-Madison is the exceptional selection of elective courses (>40 departments offer graduate courses in biological sciences). Minor coursework can be performed in Biochemistry, Nutritional Sciences, Physiology, Preventive Medicine, Cellular and Molecular Biology, Zoology, or other relevant fields. Students are intensively involved in conducting research throughout their graduate training and are expected to present research at national scientific meetings and publish their findings in peer-reviewed journals. Most Ph.D. students have the opportunity to teach during their training. Graduates of the Ph.D. program commonly pursue post-doctoral training and then establish independent research programs as university faculty members. Graduates occasionally pursue careers in industry or in clinical settings.

ADMISSIONS

Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program's website.

Graduate admissions is a two-step process between academic programs and the Graduate School. **Applicants must meet** the minimum requirements (<https://grad.wisc.edu/apply/requirements/>) **of the Graduate School as well as the program(s)**. Once you have researched the graduate program(s) you are interested in, apply online (<https://grad.wisc.edu/apply/>).

Requirements	Detail
Fall Deadline	February 15
Spring Deadline	December 1
Summer Deadline	This program does not admit in the summer.
GRE (Graduate Record Examinations)	Not required.
English Proficiency Test	Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements (https://grad.wisc.edu/apply/requirements/#english-proficiency).
Other Test(s) (e.g., GMAT, MCAT)	n/a
Letters of Recommendation Required	3

The application deadline is February 15, applications may be considered after this date.

For admission, the Graduate School requires, as does the Kinesiology department, a minimum 3.0 GPA (on a 4.0=A scale) on the last 60 semester hours (or equivalent) of undergraduate coursework. An applicant must submit academic transcripts from each institution attended and a statement of reasons for graduate study. The statement should provide specific details on why the applicant names this particular named option. If a professor in the area of specialization agrees to serve as the prospective student's advisor, then the department's graduate office recommends the applicant for admission to the Graduate School. Please consult the kinesiology website (<https://kinesiology.education.wisc.edu/grad/about/>) for further details of these requirements and procedures.

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (<https://grad.wisc.edu/funding/>) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (<http://guide.wisc.edu/graduate/#policiesandrequirements>), in addition to the program requirements listed below.

NAMED OPTION REQUIREMENTS

MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students are able to complete a program with minimal disruptions to careers and other commitments.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirements	Detail
Minimum Credit Requirement	51 credits
Minimum Residence Credit Requirement	32 credits
Minimum Graduate Coursework Requirement	26 credits must be graduate-level coursework. Details can be found in the Graduate School's Minimum Graduate Coursework (50%) policy (https://policy.wisc.edu/library/UW-1244 (https://policy.wisc.edu/library/UW-1244/)).
Overall Graduate GPA Requirement	3.00 GPA required. This program follows the Graduate School's policy: https://policy.wisc.edu/library/UW-1203 (https://policy.wisc.edu/library/UW-1203/)
Other Grade Requirements	n/a

Assessments and Examinations	Ph.D. students must: <ol style="list-style-type: none"> 1. pass preliminary exams (http://grad.wisc.edu/acadpolicy/#preliminaryexaminations) administered by a three member faculty committee; and 2. successfully propose and defend a dissertation before a five-member committee.
Language Requirements	No language requirements.
Breadth Requirement	A doctoral minor or graduate/professional certificate is not required due to the broad areas of inquiry within Kinesiology. To ensure the breadth of study requirement is achieved, students are required to complete a minimum of 2 graduate level courses (at least 2 credits each) in Kinesiology, outside of their named option coursework.

REQUIRED COURSES

Code	Title	Credits
KINES 773	Cardiorespiratory Adaptions to Environment and Exercise	3
KINES 774	Metabolic Responses to Exercise and Environmental Stress	2
STAT/F&W ECOL/ HORT 571	Statistical Methods for Bioscience I	4
KINES 900	Seminar in Kinesiology ¹	4
KINES 953	Human Biodynamics Seminar ²	1
KINES 990	Research or Thesis	4+
KINES 991	Research in Physical Activity-Theory and Design	3

General Field Requirement 4-6

At least 2 graduate level courses of at least 2 credits each in Kinesiology, outside the Exercise Physiology area. ³

Electives (chosen from the list below or others in consultation with advisor)

Students take as many electives as needed to reach the total credit minimum.

KINES 615	Laboratory Techniques in Exercise Physiology	
ANAT&PHY 435	Fundamentals of Human Physiology	
KINES/ NURSING 523	Clinical Exercise Testing & Training	

Total Credits 51

1

All Kinesiology M.S. and Ph.D. students are required to register for KINES 900 Seminar in Kinesiology for 1 credit each semester they are enrolled in the program, for a minimum of 4 credits.

2

Students should enroll in KINES 953 Human Biodynamics Seminar each time it is offered, for a minimum of 1 credit.

3

The courses within the Exercise Physiology area include:

- KINES 615 Laboratory Techniques in Exercise Physiology
- KINES 773 Cardiorespiratory Adaptions to Environment and Exercise
- KINES 774 Metabolic Responses to Exercise and Environmental Stress
- KINES 779 Human Muscle Function in Health and Disease
- KINES 953 Human Biodynamics Seminar

POLICIES

GRADUATE SCHOOL POLICIES

The Graduate School's Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy/>) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

NAMED OPTION-SPECIFIC POLICIES

PRIOR COURSEWORK

Graduate Work from Other Institutions

With program approval, students are allowed to count no more than 18 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

UW–Madison Undergraduate

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

UW–Madison University Special

This program follows the Graduate School's policy for Transfer from UW–Madison University Special Student Career at UW–Madison. (<https://policy.wisc.edu/library/UW-1216/>)

PROBATION

This program follows the Graduate School's Probation policy. (<https://policy.wisc.edu/library/UW-1217/>)

ADVISOR / COMMITTEE

This program follows the Graduate School's Advisor policy (<https://policy.wisc.edu/library/UW-1232/>) and the Graduate School's Committees policy (<https://policy.wisc.edu/library/UW-1201/>), except the dissertation committee must have a minimum of 5 members.

Ph.D. students work with two committees during their studies.

1. Preliminary exams Committee (three graduate faculty members)
2. Dissertation committee (five members)
 - a. Proposal committee
 - b. Defense committee

Ordinarily the proposal and defense committees have the same membership. Committee members are selected by the student in consultation with the faculty advisor.

CREDITS PER TERM ALLOWED

15 credits

TIME LIMITS

This program follows the Graduate School's Time Limits policy. (<https://policy.wisc.edu/library/UW-1221/>)

Within the Department, completion of required courses and passing preliminary exams within three years of starting the Ph.D. program is considered satisfactory progress. See the Graduate Program Handbook link in Contact Information for more information.

GRIEVANCES AND APPEALS

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (<https://doso.students.wisc.edu/bias-or-hate-reporting/>)
- Graduate Assistantship Policies and Procedures (<https://hr.wisc.edu/policies/gapp/#grievance-procedure>)
- Hostile and Intimidating Behavior Policies and Procedures (<https://hr.wisc.edu/hib/>)
 - Office of the Provost for Faculty and Staff Affairs (<https://facstaff.provost.wisc.edu/>)
- Dean of Students Office (<https://doso.students.wisc.edu/>) (for all students to seek grievance assistance and support)
- Employee Assistance (<http://www.eao.wisc.edu/>) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (<https://employeeabilities.wisc.edu/>) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (<https://grad.wisc.edu/>) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (<https://compliance.wisc.edu/>) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (<https://conduct.students.wisc.edu/>) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (<http://www.ombuds.wisc.edu/>) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (<https://compliance.wisc.edu/titleix/>) (for concerns about discrimination)

Any student who feels that they have been treated unfairly by a faculty or staff member has the right to complain about the treatment and to receive a prompt hearing of the grievance, following these grievance procedures. The complaint may concern course grades, classroom treatment, program admission, or other issues. To insure a prompt and fair hearing of any complaint, and to protect both the rights of the student and the person at whom the complaint is addressed, the procedures below are used in the School of Education.

The person whom the complaint is directed against must be an employee of the School of Education. Any student or potential student may use these procedures unless the complaint is covered by other campus rules or contracts. The following steps are available within the School of Education when a student has a grievance:

1. The student should first talk with the person against whom the grievance is directed. Most issues can be settled at this level. If the complaint is directed against a teaching assistant, and the student is not satisfied, the next step would be to talk to the TA's supervisor, who is usually the course professor. If the complaint is not resolved satisfactorily, the student may continue to step 2.
2. If the complaint does not involve an academic department, the procedure outlined in Step 4 below should be followed. If the complaint involves an academic department, the student should contact the chair of the department. The chair will attempt to resolve the problem informally. If this cannot be done to the student's satisfaction, the student may submit the grievance to the chair in writing. This must be done within 60 calendar days of the alleged unfair treatment.
3. On receipt of a written complaint, the chair will refer the matter to a departmental committee, which will obtain a written response from the person at whom the complaint is directed. This response shall be shared with the person filing the grievance. The chair will provide a timely written decision to the student on the action taken by the committee.
4. If either party is not satisfied with the decision of the department, they have five working days from receipt of the decision to contact the dean's office (at the number below), indicating the intention to appeal. If the complaint does not involve an academic department in the school, the student must contact the dean's office within 60 calendar days of the alleged unfair treatment.
5. In either case, there will be an attempt to resolve the issue informally by the associate dean. If this cannot be done, the complaint can be filed in writing with the dean's office. This must be done within 10 working days of the time the appealing party was notified that informal resolution was unsuccessful.
6. On receipt of such a written complaint, the associate dean will convene a subcommittee of the school's Equity & Diversity Committee. This subcommittee may ask for additional information from the parties involved and may hold a hearing at which both parties will be asked to speak separately. The subcommittee will then make a written recommendation to the dean of the School of Education who will render a decision. Unless a longer time is negotiated, this written decision shall be made within 20 working days from the date when the grievance was filed with the dean's office.

Questions about these procedures can be directed to the School of Education Dean's Office, 377 Education Building, 1000 Bascom Mall, 608-262-1763.

State law contains additional provisions regarding discrimination and harassment. Wisconsin Statutes 36.12 reads, in part: "No student may be denied admission to, participation in or the benefits of, or be discriminated against in any service, program, course or facility of the system or its institutions or center because of the student's race, color, creed, religion, sex, national origin, disability, ancestry, age, sexual orientation, pregnancy, marital status or parental status." In addition, UW–System prohibits discrimination based on gender identity or gender expression. Students have the right to file discrimination and harassment complaints with the Office of Compliance (<https://compliance.wisc.edu/>), 361 Bascom Hall, 608-265-6018, uwcomplianceoffice@wisc.edu.

OTHER

n/a

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School's professional development resources (<https://grad.wisc.edu/pd/>) to build skills, thrive academically, and launch your career.

PEOPLE

Faculty mentors in Exercise Physiology include:

Jill Barnes
Gary Diffie
William Schrage

Contact information (<https://kinesiology.education.wisc.edu/people/>) for faculty and lab information (<https://kinesiology.education.wisc.edu/research/>) can be found on the Kinesiology website.

Affiliate advisors in exercise physiology include:

Marlowe Eldridge
Troy Hornberger