

# KINESIOLOGY: EXERCISE PHYSIOLOGY, PHD

This is a named option in the Kinesiology, PhD. (<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 alter 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. Diffey 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, the 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 PhD program is designed to prepare students for scholarly research and teaching. Students are prepared with advanced coursework in Exercise Physiology along with supporting coursework 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 PhD students have the opportunity to teach during their training. Graduates of the PhD 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

### 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	December 1
Spring Deadline	September 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 exclusively in English, must provide an English proficiency test score earned within two years of the anticipated term of enrollment. Refer to the Graduate School: Minimum Requirements for Admission policy: <a href="https://policy.wisc.edu/library/">https://policy.wisc.edu/library/</a> UW-1241 ( <a href="https://policy.wisc.edu/library/UW-1241/">https://policy.wisc.edu/library/UW-1241/</a> ).
Other Test(s) (e.g., GMAT, MCAT)	n/a
Letters of Recommendation Required	3

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/graduate-admissions/kinesiology-graduate-admissions/>) for further details of these requirements and procedures.

## FUNDING

### 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 typically take enough credits aimed at completing the program in a year or two.

**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. Refer to the Graduate School: Minimum Graduate Coursework (50%) Requirement policy: <a href="https://policy.wisc.edu/library/UW-1244">https://policy.wisc.edu/library/UW-1244</a> ( <a href="https://policy.wisc.edu/library/UW-1244/">https://policy.wisc.edu/library/UW-1244/</a> ).
Overall Graduate GPA Requirement	3.00 GPA required. Refer to the Graduate School: Grade Point Average (GPA) Requirement policy: <a href="https://policy.wisc.edu/library/UW-1203">https://policy.wisc.edu/library/UW-1203</a> ( <a href="https://policy.wisc.edu/library/UW-1203/">https://policy.wisc.edu/library/UW-1203/</a> ).
Other Grade Requirements	n/a

Assessments and Examinations	PhD students must: <ol style="list-style-type: none"> <li>pass preliminary exams (<a href="http://grad.wisc.edu/acadpolicy/#preliminaryexaminations">http://grad.wisc.edu/acadpolicy/#preliminaryexaminations</a>) administered by a three member faculty committee; and</li> <li>successfully propose and defend a dissertation before a five-member committee.</li> </ol>
Language Requirements	No language requirements.
Graduate School 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 two graduate level courses (at least two credits each) in Kinesiology, outside of their named option coursework.

### REQUIRED COURSES

Code	Title	Credits
<b>Core</b>		
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 <sup>1</sup>	4
KINES 953	Human Biodynamics Seminar <sup>2</sup>	1
KINES 990	Research or Thesis	4+
KINES 991	Research in Physical Activity-Theory and Design	3

General Field Requirement	4-6
At least two graduate level courses of at least two credits each in Kinesiology, outside the Exercise Physiology area. The following courses will not be applied toward meeting the breadth requirement KINES 699, 900, 990, 991, 999. <sup>3</sup>	

#### 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

<b>Total Credits</b>	<b>51</b>
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- <sup>1</sup> All Kinesiology MS and PhD 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.
- <sup>2</sup> Students should enroll in KINES 953 Human Biodynamics Seminar each time it is offered, for a minimum of 1 credit.
- <sup>3</sup> 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

- 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

Refer to the Graduate School: Time Limits (<https://policy.wisc.edu/library/UW-1221/>) policy.

Within the Department, completion of required courses and passing preliminary exams within three years of starting the PhD 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://employee disabilities.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)

## School of Education Grievance Policy and Procedures

The following School of Education Student Grievance Policy and associated procedures are designed for use in response to individual student grievances regarding faculty or staff in the School of Education.

Any individual student who feels they have been treated unfairly by a School of Education faculty or staff member has the right to file a grievance about the treatment and receive a timely response addressing

## 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 Credits Earned at Other Institutions

With program approval, students are allowed to transfer 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.

##### Undergraduate Credits Earned at Other Institutions or UW-Madison

No credits from an other institution or UW-Madison undergraduate degree are allowed to transfer toward the degree.

##### Credits Earned as a Professional Student at UW-Madison (Law, Medicine, Pharmacy, and Veterinary careers)

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

##### Credits Earned as a University Special Student at UW-Madison

Refer to the Graduate School: Transfer Credits for Prior Coursework (<https://policy.wisc.edu/library/UW-1216/>) policy.

## PROBATION

Refer to the Graduate School: Probation (<https://policy.wisc.edu/library/UW-1217/>) policy.

## ADVISOR / COMMITTEE

Refer to the Graduate School: Advisor (<https://policy.wisc.edu/library/UW-1232/>) and Graduate School: Committees (Doctoral/Master's/MFA) (<https://policy.wisc.edu/library/UW-1201/>) policies, except the dissertation committee must have a minimum of five members.

PhD students work with two committees during their studies.

1. Preliminary exams Committee (three graduate faculty members)
2. Dissertation committee (five members)

their concerns. Any student, undergraduate or graduate, may use these grievance procedures, except employees whose complaints are covered under other campus policies. The grievance may concern classroom treatment, mentoring or advising, program admission or continuation, course grades (study abroad grade complaints are handled through International Academic Programs (<https://studyabroad.wisc.edu/>)), or issues not covered by other campus policies or grievance procedures.

For grievances regarding discrimination based on protected bases (<https://compliance.wisc.edu/eo-complaint/>) (i.e., race, color, national origin, sex, disability, age, etc.), contact the Office of Compliance (<https://compliance.wisc.edu/eo-complaint/>).

For grievances or concerns regarding sexual harassment or sexual violence (including sexual assault, dating/domestic violence, stalking, and sexual exploitation), contact the Sexual Misconduct Resource and Response Program (<https://compliance.wisc.edu/titleix/>) within the Office of Compliance.

For grievances that involve the behavior of a student, contact the Office of Student Conduct and Community Standards in the Dean of Students Office at <https://conduct.students.wisc.edu/>.

For grievances about, or directed at, faculty or staff in a School of Education department, unit, or program, students should follow these steps:

1. Students are strongly encouraged to first talk with the person against whom the concern is directed. Many issues can be settled informally at this level. If students are unable to resolve concerns directly or without additional support, step 2 or 3 should be pursued.
2. If unresolved after taking or considering step 1:
  - a. If the concern is directed against a teaching assistant (TA), and the student is not satisfied, the student should contact the TA's supervisor, who is usually the course professor. The course professor will attempt to resolve the concern informally.
  - b. If the concern involves a non-TA instructor, staff member, professor, academic department, or School of Education office or unit, the student should contact the chair of the department or the director of the office or unit, or their designee. The chair or director, or their designee, will attempt to resolve the concern informally. If the concern is about the department chair or office/unit director, the student should consult the School of Education Senior Associate Dean for guidance.
3. If the concern remains unresolved after step 2, the student may submit a formal grievance to the chair or director in writing within 30 business days<sup>1</sup> of the alleged unfair treatment. To the fullest extent possible, a formal written grievance shall contain a clear and concise statement of the issue(s) involved and the relief sought.
4. On receipt of a written grievance, the chair or director will notify the person at whom the grievance is directed with a copy of the written grievance. The person at whom the complaint is directed may submit a written response, which would be shared with the student.
5. On receipt of a written grievance, the chair or director will refer the matter to a department, office, or unit committee comprised of at least two members. The committee may be an existing committee or one constituted for this purpose. The committee, or delegates from the committee, may meet with the parties involved and/or review any material either party shares with the committee.
6. The committee will provide a written description of the facts of the grievance and communicate recommendations to the department

chair or office/unit head regarding how the grievance should be handled.

7. The chair or director will offer to meet with the student who made the grievance and also will provide a written decision to the student, including a description of any related action taken by the committee, within 30 business days of receiving the formal grievance.

<sup>1</sup> For the purpose of this policy, business days refers to those days when the University Offices are open and shall not include weekends, university holidays, spring recess, or the period from the last day of exams of fall semester instruction to the first day of spring semester instruction. All time limits may be modified by mutual consent of the parties involved.

If the grievance concerns an undergraduate course grade, the decision of the department chair after reviewing the committee's recommendations is final.

Other types of grievances may be appealed using the following procedures:

1. Both the student who filed the grievance or the person at whom the grievance was directed, if unsatisfied with the decision of the department, office or unit, have five (5) business days from receipt of the decision to contact the Senior Associate Dean, indicating the intention to appeal.
2. A written appeal must be filed with the Senior Associate Dean within 10 business days of the time the appealing party was notified of the initial resolution of the complaint.
3. On receipt of a written appeal, the Senior Associate Dean will convene a sub-committee of the School of Education's Academic Planning Council. This subcommittee may ask for additional information from the parties involved and/or may hold a meeting at which both parties will be asked to speak separately (i.e., not in the room at the same time).
4. The subcommittee will then make a written recommendation to the Dean of the School of Education, or their designee, who will render a decision. The dean or designee's written decision shall be made within 30 business days from the date when the written appeal was filed with the Senior Associate Dean. For undergraduate students, the dean or designee's decision is final.

Further appealing a School of Education decision – *graduate students only*

Graduate students have the option to appeal decisions by the School of Education dean or designee by using the process detailed on the Graduate School's website (<https://grad.wisc.edu/documents/grievances-and-appeals/>).

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

### Resources

- Office of Compliance (<https://compliance.wisc.edu/>) (for discrimination based on protected classes, including misconduct) 179A Bascom Hall, 608-262-2378
- Office of Student Conduct and Community Standards (<https://conduct.students.wisc.edu/>) (for conflicts between students, or academic integrity violations) 70 Bascom Hall, 608-263-5700

- Bias or Hate Reporting (<https://doso.students.wisc.edu/bias-or-hate-reporting/>) (for students who experience or observe bias or hate incidents) 70 Bascom Hall, 608-263-5700
- Graduate School (<https://grad.wisc.edu/>) (for graduate students who need informal advice at any level of review; for official appeals of program/departmental or school/college grievance decisions, see Graduate Assistant Policies and Procedures (<https://hr.wisc.edu/policies/gapp/>)) 217 Bascom Hall, 608-262-2433
- Ombuds Office for Faculty and Staff (<http://www.ombuds.wisc.edu/>) (for UW–Madison employees, including graduate students) 523-524 Lowell Center, 608-265-9992
- Employee Assistance (<http://www.eao.wisc.edu/>) (for conflicts involving graduate assistants and other employees) 256 Lowell Hall, 608-263-2987
- Dean of Students Office (<https://doso.students.wisc.edu/>) (for any students needing advice or support) 70 Bascom Hall, 608-263-5700
- Office of Human Resources (<https://kb.wisc.edu/ohr/policies/search.php?cat=4506>) for policies and procedures to address workplace conflict) 21 N Park Street Suite 5101, 608-265-2257
- School of Education, Office of Student Services (<https://education.wisc.edu/about/student-services/>) (for students, particularly undergraduates, in the School of Education) 139 Education Building, 608-262-1651
- School of Education, Office of Equity, Diversity, and Inclusion (<https://education.wisc.edu/about/diversity-inclusion/>) (OEDI) 145 Education Building, 608-262-8427

## OTHER

n/a

## PROFESSIONAL DEVELOPMENT

### 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

### 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