Welcome to the School of Freshwater Sciences
600 E Greenfield Ave
Milwaukee WI 53204

The information in the School of Freshwater Sciences graduate student handbook applies to all students admitted for study at the School of Freshwater Sciences and supplements information provided in the online Graduate School Catalog (http://www.graduateschool.uwm.edu/).

During your time in our program, you should consult the Graduate School about deadlines and requirements for graduation, as well as information regarding transfer of credits, tuition, fees, residency requirements, thesis credit requirements, and taxes on assistantships.

Additional information about our programs and faculty can be found at our website: http://uwm.edu/freshwater
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General Information

The UWM School of Freshwater Sciences (SFS) is located in Milwaukee, Wisconsin at the edge of the largest freshwater system on the surface of the Earth -- the Great Lakes. Established in 2009, SFS expands a tradition of freshwater studies at UWM that began in 1966 with the Center for Great Lakes Studies and continued with the Great Lakes WATER Institute in 1973.

SFS is the first graduate school in the nation dedicated solely to the study of freshwater. We are committed to equipping future scientists/professionals with the skills and expertise to address the complex, multifaceted issues facing the world’s freshwater resources. Our research and education programs are integrated across four major areas: freshwater system dynamics; human & ecosystem health; freshwater technology; freshwater policy and economics.

Program of Study

Degree Options

The School of Freshwater Sciences offers both MS and PhD programs that prepare students for careers in the water sciences utilizing novel approaches to the sustainable and equitable use and management of freshwater systems worldwide. Detailed program descriptions begin on p. 8 of this handbook.

The PhD in Freshwater Sciences is a dissertation-based program that prepares students for research careers in academia and industry. Emphasis on preparing students with strong interdisciplinary skills and expertise provides every student with proficiency in at least three of the four areas of study: (a) Freshwater System Dynamics; (b) Human and Ecosystem Health; (c) Freshwater Technology; and (d) Freshwater Policy and Economics.
Administrative Contacts

School of Freshwater Sciences
600 E Greenfield Avenue
Milwaukee, WI 53204
(414) 382-1700

Dr. Harvey Bootsma
Graduate Program Representative
(414) 382-1717
hbootsma@uwm.edu

Dr. Paul Roebber
Associate Dean of Academics & Administrative Affairs
(414) 382-1751
roebber@uwm.edu

Margret Petrie
Director of Academic Programs
(414) 382-1700
petriem@uwm.edu

Mallory Minor
Academic Affairs Manager
(414) 382-1778
minorm@uwm.edu

Lindsay Frost
Recruitment & Student Services Manager
(414) 382-1783
lgfrost@uwm.edu

For a complete list of SFS Administrative Staff, visit:
http://uwm.edu/freshwater/staff/

Graduate School
Graduate Student Services is located at:
3203 N Downer Avenue
261 Mitchell Hall
Milwaukee, WI 53211

Academic Programs & Student Services
Phone: (414) 229-6569
Fax: (414) 229-6967

Molly Wierzbicki
Program Service Representative
(414) 229-4374
mkwierz@uwm.edu

Jenna Jazna
Master’s Graduation Specialist
(414) 229-4234
jazna@uwm.edu
SFS Faculty and Scientists

Graduate Faculty

Distinguished Professor
Roebber, Paul, PhD, McGill University

Professors
Garman, David, PhD, University of Sydney
Grundl, Timothy, PhD, Colorado School of Mines
Guo, Laodong, PhD, Texas A&M University
Janssen, John, PhD, Michigan State University
Klaper, Rebecca, PhD, University of Georgia
Klump, J. Val, PhD, University of North Carolina
McLellan, Sandra, PhD, University of Cincinnati

Associate Professors
Bootsma, Harvey, PhD, University of Manitoba
Carvan, Michael, PhD, Texas A&M University
Kaster, Jerry, PhD, University of Colorado
Kehl, Jenny, PhD, University of Colorado-Boulder

Assistant Professors
Consi, Thomas, PhD, Columbia University
Newton, Ryan, PhD, University of Wisconsin-Madison
Sepulveda Villet, Osvaldo Jhonatan, PhD, University of Toledo
Smith, Matthew, PhD, University of Tasmania
Waples, James, PhD, University of Wisconsin-Milwaukee

Scientists
Aguilar-Diaz, Carmen, PhD, University of Wisconsin-Milwaukee
Binkowski, Fred, MS, University of Wisconsin-Milwaukee
Cuhel, Russell, PhD, Massachusetts Institute of Technology & Woods Hole Oceanographic Institution
Deng, Dong-Fang, PhD, University of California-Davis

UWM Affiliate Faculty

Distinguished Professor
Strickler, Rudi, PhD, Swiss Federal Institute of Technology (Biological Sciences)

Professor
Berges, John, PhD, University of British Columbia (Biological Sciences)
Hutz, Reinhold, PhD, Michigan State University (Biological Sciences)

Associate Professors
Frank, Nancy, PhD, State University of New York-Albany (Criminal Justice)
Udvadia, Ava J., PhD, Duke University (Biological Sciences)
Young, Erica, PhD, Monash University (Biological Sciences)

Assistant Professors
Chang, Woo-Jin, PhD, Inha University (Mechanical Engineering)
Han, Weon Shik, PhD, New Mexico Institute of Mining and Technology (Geosciences)
Xu, Shangping, PhD, Princeton University (Geosciences)
Financial Support

Students admitted to the School of Freshwater Sciences may be eligible for financial support through Graduate School Fellowships, Research Assistantships, or scholarships. Students seeking financial support should so indicate on their Graduate School application forms. Research Assistantship appointments and scholarships are available through the School of Freshwater Sciences.

Graduate School Fellowships
A limited number of competitively awarded fellowships are available to full time graduate students through the Graduate School. The Distinguished Graduate Student Fellowship, Graduate School Dissertation Fellowship, and Advanced Opportunity Fellowship include full remission of tuition, a monthly stipend and benefits such as health insurance. Application materials for are available online in the Graduate School.

Research Assistantships
A Research Assistantship (RA), available for MS thesis track and PhD students, provides support for specific research projects through external grants and projects awarded to individual faculty.

Scholarships
Current scholarship opportunities offered directly through the School of Freshwater Sciences can be found at: http://uwm.edu/freshwater/academics/financial-support/
Doctor of Philosophy (PhD) in Freshwater Sciences

The PhD program is a research degree designed to encourage students in the exploration and discovery of novel approaches to the sustainable and equitable use and management of freshwater systems worldwide.

This dissertation-based program prepares students for research careers in academia and industry. Emphasis on preparing students with strong interdisciplinary skills and expertise provides each student with proficiency in at least three of the four major areas of research: freshwater systems, human/ecosystem health, technology, and freshwater policy and economics.

Major Professor as Advisor

The student must have a major professor to advise and supervise the student’s studies as specified in Graduate School regulations. Appointment of a major professor will be based on compatibility between a student’s preferred research area or area of specialization and a professor’s area of specialization. The advisor will assist his/her students in course selection and supervision of research.

Residence

Residence requirements cannot be met at the master’s level, and must be fulfilled before you can achieve dissertator status.

**Continuous-year requirement:** You must complete 8 to 12 graduate credits in each of two consecutive semesters, or 6 or more graduate credits in each of three consecutive semesters, exclusive of summer sessions. This requirement is intended to provide immersion in the chosen discipline and foster participation in the community of scholars.

**50% of credits requirement:** At least half of the graduate credits required for the Ph.D. must be completed at UWM in doctoral status.
Course of Study

Students must earn 54 credits beyond the bachelor's degree, of which 24 credits may be taken from formal coursework completed as part of a master’s degree. Students are required to take two integrative Seminar courses (FRSHWTR 901) and two Freshwater Sciences Practicum courses (FRSHWTR 512), as well as Quantitative Freshwater Analysis (FRSHWTR 504). In addition, students must complete at least 9 credits of dissertation research. Elective courses are selected in consultation with the student's PhD committee. A minimum of 27 credits must be earned in residence at UWM. Students may take up to a maximum of 9 credits of independent study counting toward the degree.

Students must be proficient in at least three of the four areas of study: 1. freshwater systems, 2. human and ecosystem health, 3. freshwater technology, and 4. freshwater policy and economics. To meet this requirement, core courses are offered in each of these respective areas:

- FRSHWTR 502 Aquatic Ecosystem Dynamics
- FRSHWTR 506 Environmental Health of Freshwater Ecosystems
- FRSHWTR 508 Freshwater Engineering
- FRSHWTR 510 Economics, Policy and Management of Water

The student's doctoral committee can recommend an exemption from taking the core course in any area that the student is deemed proficient. For more information on exemptions please contact the SFS graduate representative. Requests for exemption from Quantitative Freshwater Analysis-FRSHWTR 504 follow the same guidelines as the core course proficiency policy.

Students can submit their milestones using the Online Milestones System: [http://www.graduateschool.uwm.edu/doctoralmilestones/](http://www.graduateschool.uwm.edu/doctoralmilestones/).

Program of Study

A Program of Study, including coursework and proposed research, is planned by the student in consultation with the major professor, and must be approved by the Committee. A student must present an annual progress report and an updated plan of study to his or her Doctoral Advisory Committee. For students entering with advanced degrees, some of the coursework may already be completed. Requests for counting previously taken courses toward the degree requirements will be evaluated on a case-by-case basis. A minimal grade point average of 3.00 must be earned in coursework, not including research or seminars.

Time Limit

Doctoral students must earn the PhD within ten years of enrolling. This includes all coursework, dissertation, and examinations required for the degree. Students entering doctoral programs in the fall of 2000 or later must pass the doctoral preliminary examination within five years of initial doctoral program enrollment.
### General Outline for Completion of PhD Program

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Fall sem.</th>
<th>Begin Core Curriculum; Interview faculty about Research.</th>
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</thead>
<tbody>
<tr>
<td>Winterim</td>
<td>Practicum course #1.</td>
<td></td>
</tr>
<tr>
<td>Spring sem.</td>
<td>Complete Core Curriculum; Form PhD Advisory Committee; Develop Plan of Study (with Committee); Preliminary Exam.</td>
<td></td>
</tr>
<tr>
<td>Summer</td>
<td>Practicum course #2; Research work.</td>
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<tr>
<td>Year 2</td>
<td>Fall sem.</td>
<td>Continue formal course work; Retake Preliminary Exam, if necessary Research work.</td>
</tr>
<tr>
<td>Spring sem.</td>
<td>Complete formal course work; Research work; Submit Dissertation Proposal; Defend Dissertation Proposal and, if successful, apply for Dissertator status; Submit annual Progress Report.</td>
<td></td>
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<tr>
<td>Year 3</td>
<td>Research work; Defend Dissertation Proposal (if necessary); if successful apply for Dissertator status; Submit annual Progress Report.</td>
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<tr>
<td>Year 4</td>
<td>Research work; Write dissertation; Present Research Seminar; Defend Dissertation; Apply for Graduation.</td>
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</table>
PhD Advisory Committee

The membership of the PhD Advisory Committee will be established by the end of the student's first year. The Committee must consist of five members including the doctoral student’s advisor as chair (or co-advisors as co-chairs) and at least two graduate faculty members from the School of Freshwater Sciences. The other two members should represent at least one other department within UWM outside the School of Freshwater Sciences, with consideration given to the inclusion of an external, non-UWM member. The Committee must meet at least once a year to monitor and formally report to the faculty on the student's academic and research progress.

This committee must approve the student’s annual Plan of Study, the student’s dissertation proposal, and serves as the doctoral examining committee for the dissertation defense.

Doctoral Preliminary Examination

Doctoral preliminary examinations, or "prelims," are designed to assess a doctoral candidate’s mastery of subject knowledge and application skills, and ensure adequate preparation for individual dissertation research. The student must pass the prelims by the end of the second year in order to continue in the program. Extensions of this deadline must be approved by the PhD Advisory Committee.

The examination has two parts: written and oral. The content of the exam is determined in advance by the student's Advisory Committee, and will include subject matter that is broadly related to the area of research that the student will specialize in, as well as content related to the core courses. The PhD Committee decides by simple majority whether the student passes, fails, or must retake part or all of the exam. At the discretion of the Committee, a student who fails the examination may be allowed one additional attempt of all or part of the examination. After successful completion of the preliminary examination, the student concentrates on the development and execution of original research.

One-credit exemption

During the semester you are preparing for doctoral prelims, you may enroll for a minimum of 1 graduate credit and still be considered full time for financial aid/grant purposes. International students should check with the Center for International Education for more information. This status is available for one semester only, and does not fulfill residence requirements. To request this option, you must have already submitted your Application for the Doctoral Preliminary Examination. Teaching, project, and research assistants must also submit the Graduate Assistant Justification form for approval to enroll for this one-credit exemption. http://www.graduateschool.uwm.edu/forms-and-downloads/students/graduate-assistant-justification-form.pdf
Dissertation Proposal Hearing

Following the successful completion of the doctoral preliminary examination, the student must submit a written dissertation proposal to the PhD Advisory Committee. The proposal must be submitted within one semester of the successful completion of prelim exams, and defended by the end of the following semester. Extensions of this deadline must be approved by the PhD Advisory Committee. The PhD Advisory Committee must approve your proposal, which establishes agreement on your chosen research and indicates that you have adequate preparation to complete the research. The hearing can be held before or after achieving dissertator status.

Dissertator Status

A dissertator is a student who has completed all requirements for a PhD degree except for the dissertation. Specific requirements which must be satisfied before the Graduate School places a doctoral student in dissertator status include: successful completion of all course requirements; passing the preliminary exam; fulfilling residence requirements; submitting your Proposal Hearing Form to the Graduate School; clearing incomplete and “progress” grades in non-research courses; and achieving a 3.0 or higher cumulative GPA.

You must submit an Application for Doctoral Dissertator Status for this information to be verified and approved by the Graduate School and your graduate program unit before the semester begins.

Dissertation

During the final year of study, the candidate must present a public seminar on the dissertation research and subsequently prepare and successfully defend a dissertation reporting the results of the candidate’s research to the Committee. The original research findings embodied in this dissertation are expected to be accepted for publication in one or more refereed journals.

Dissertation Defense

As the final step toward the degree the candidate must defend the dissertation before the PhD Advisory Committee. The subject of the doctoral defense is the dissertation itself. The dissertation defense provides an opportunity for you to demonstrate your expertise after several years of preparatory coursework, research, and writing. You also will demonstrate your ability to explain ideas and methods embodied in the dissertation and to defend the implications and conclusions of your research.

The defense allows your committee members to verify your independent scholarly contributions. They may offer guidance regarding publication possibilities for the dissertation, and encourage further research efforts in your area of academic specialization. All committee members are responsible for reading and voting on the dissertation. At the conclusion of the defense, the committee may vote pass, fail, or defer the decision.
Applying for Graduation

Candidate for PhD
To graduate in the semester you applied for, you must meet these deadlines (found here: http://www.graduateschool.uwm.edu/students/current/doctoral/)

1. During the first two weeks of the semester: Submit the Application for Doctoral Graduation to the Graduate School.
2. At least two weeks before the graduation ceremony date: Hold the dissertation defense.
3. Submit your final dissertation by the posted submission deadline. Submission to the Graduate School must include:
   a. An electronic submission of the thesis through ProQuest ETD Administrator. More information on the submission process found on the UWM ETD Web site.
   b. Thesis & Dissertation Approval and Publishing Options Form with an original signature from you and your major professor.
   c. Complete the online Survey of Earned Doctorates

If any of these deadlines are not met, you must apply and graduate in the next semester. You will not be required to register for the next semester if the dissertation has been defended, passed, and accepted by the Graduate School before the first day of classes for the next semester. The date of graduation, however, will be the next semester.

If you want your name to appear in the commencement bulletin, be sure that your directory information with the University is not restricted. If you restricted the release of your address, phone number, and other limited information, contact the Department of Enrollment Services Information Center, Mellencamp 274. This should be done by the second week of the semester in which you expect to graduate to ensure that your name will appear in the bulletin.

Removal of the restriction will allow your directory information to be released for all publicity purposes, as well as the commencement booklet.

Commencement
Graduation ceremonies are held in May and December. August graduates attend the December graduation ceremony. About one month before graduation, all eligible degree candidates will receive a letter from the Secretary of the University’s office containing the date, location, and time of the ceremony, as well as information on ordering caps and gowns. Any questions about the commencement ceremony should be directed to the Secretary of the University.
<table>
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<tr>
<th>Milestone</th>
<th>Deadline</th>
<th>Student Requirements/Forms</th>
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<tr>
<td>Major Professor</td>
<td>Must be selected no later than preliminary exam.</td>
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<td>Advisory Committee</td>
<td>Must be established by end of the first year.</td>
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<tr>
<td>Plan of Study</td>
<td>Yearly. Must present an updated Plan of Study to PhD Advisory Committee annually.</td>
<td>Complete POS form</td>
</tr>
<tr>
<td>Residency</td>
<td>Must be complete prior to achieving dissertator status.</td>
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<tr>
<td>Doctoral Preliminary Exam</td>
<td>Must be passed by the end of the second year in order to continue in program.</td>
<td>Complete application for Doctoral Preliminary Exam: <a href="http://www.graduateschool.uwm.edu/doctoralmilestones/">link</a></td>
</tr>
<tr>
<td>Dissertation Proposal Hearing</td>
<td>– Application must be made at least two weeks before hearing date.</td>
<td>– Complete Dissertator Proposal Hearing Application Form: <a href="http://www.graduateschool.uwm.edu/doctoralmilestones/">link</a></td>
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<td></td>
<td>– Can be held before or after achieving dissertator status.</td>
<td>– Must be submitted to the Graduate School prior to achieving dissertator status.</td>
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<tr>
<td></td>
<td>– Should be made during the 2nd year; no later than the end of 3rd year of study.</td>
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</tr>
<tr>
<td>Dissertator Status</td>
<td>Eligibility checklist:</td>
<td>Complete Application for Doctoral Dissertator Status form: <a href="http://www.graduateschool.uwm.edu/doctoralmilestones/">link</a></td>
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<td></td>
<td>□ Complete all coursework requirements;</td>
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<td></td>
<td>□ Pass doctoral preliminary exam;</td>
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<td></td>
<td>□ Submit dissertation topic summary or proposal hearing form to Grad School;</td>
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<td></td>
<td>□ Meet residence requirements;</td>
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<td></td>
<td>□ Clear incomplete/&quot;progress&quot; grades in non-research courses;</td>
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<td>□ Achieve 3.0 or higher cumulative GPA.</td>
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<td>Dissertation</td>
<td></td>
<td>Format requirements: <a href="http://www.graduateschool.uwm.edu/students/current/thesis-and-dissertation-formatting/">link</a></td>
</tr>
<tr>
<td>Defense</td>
<td>– Submit application by the end of 2nd week of semester of expected graduation.</td>
<td>Complete Application for PhD Dissertation Defense and Graduation: <a href="http://www.graduateschool.uwm.edu/forms-and-downloads/students/grad_doctoral_app.cfm">link</a></td>
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<td>– Defense Readiness Confirmation: Have format reviewed 1 month before defense (Pat Hayes, <a href="mailto:hayes@uwm.edu">hayes@uwm.edu</a>, 229-6263)</td>
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<tr>
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<td>– Oral defense must be held at least two weeks prior to graduation.</td>
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<tr>
<td>Graduation</td>
<td>1. Apply for graduation by 2nd week of semester in which you plan to graduate.</td>
<td>Requirements:</td>
</tr>
<tr>
<td></td>
<td>2. Hold dissertation defense at least two weeks before graduation ceremony date.</td>
<td>□ Application for Graduation (already submitted as part of Dissertation Defense requirement),</td>
</tr>
<tr>
<td></td>
<td>3. Dissertation must be accepted by Grad. School by dissertation submission deadline (1 week before ceremony date).</td>
<td>□ Electronic submission of Dissertation,</td>
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<td></td>
<td><a href="http://www.graduateschool.uwm.edu/students/current/graduation/deadlines/">link</a></td>
<td>□ ‘Survey of Earned Doctorates’ form,</td>
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<td></td>
<td>□ ‘Thesis &amp; Dissertation Approval’ form,</td>
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<tr>
<td></td>
<td></td>
<td>□ ‘Publishing through UWM Libraries’ form.</td>
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