

# FRESHWATER SCIENCES AND TECHNOLOGY, MS (THESIS)

The School of Freshwater Sciences offers a graduate program of studies providing students with advanced training and education in four areas:

- Freshwater System Dynamics
- Human and Ecosystem Health
- Freshwater Technology
- Freshwater Policy and Economics

Each of these focus areas is interrelated with the others, and includes biologic, physical, technologic and policy aspects of freshwater.

The Master of Science program has two tracks designed to provide a strong foundation necessary for the training of graduates that will utilize novel approaches to the sustainable and equitable use and management of freshwater systems worldwide. The Doctor of Philosophy program is a research degree designed to explore and discover novel approaches to the sustainable and equitable use and management of freshwater systems worldwide. These programs will create an interdisciplinary atmosphere for training the next generation of scientists armed with the knowledge, skills and experience to anticipate and address the freshwater issues of the future.

Timely application is encouraged for students seeking financial support. When applying for admission, applicants should describe as completely as possible their specific research interests within freshwater sciences. Applicants are strongly encouraged to establish contact, before or during the application process, with Freshwater Sciences faculty members whose research interests are closest to their own, regarding the likelihood of one serving as the student's major professor.

## Admission Requirements

### Application Deadlines

Application deadlines vary by program, please review the application deadline chart (<http://uwm.edu/graduateschool/program-deadlines>) for specific programs. Other important dates and deadlines can be found by using the One Stop calendars (<https://uwm.edu/onestop/dates-and-deadlines>).

### Prerequisite Coursework

The following prerequisites are strongly recommended:

1. At least one semester coursework in three of the following at the college level: chemistry, biological sciences, physics, and calculus.
2. One additional semester of chemistry, biological sciences, or physics.

Admission will be considered based upon the applicant's academic and/or professional background, proposed course of study, and possible additional coursework once in the degree program, should important preparatory gaps be identified.

### Other Admission Requirements

An applicant must meet Graduate School requirements (<http://uwm.edu/graduateschool/admission>) plus these departmental requirements to be considered for admission to the program:

1. A bachelor's degree in biology, chemistry, economics, geosciences, mathematics, physics, public policy, or other appropriate natural science, social science or engineering discipline.

2. A minimum GPA of 3.0.
3. Submission of scores on the General Test of the Graduate Record Examination (<http://uwm.edu/graduateschool/admission/#gre>) (This requirement is optional for Professional Track applicants.).
4. Three letters of recommendation from persons familiar with the applicant's scholarship and/or research potential.

The student must indicate in the Statement of Purpose (part of the formalized application process) the track to which they are applying and the intended focus of their MS studies. The statement must also indicate how their previous education has prepared them for graduate studies.

Critical skills required for the successful completion of the MS program include research design, data analysis, and effective communication of research results.

## Credits and Courses

### For students admitted Spring 2018 and after

Minimum degree requirement is 31 graduate credits.

Code	Title	Credits
<b>Choose three of the following</b>		<b>9</b>
FRSHWTR 502	Aquatic Ecosystem Dynamics	
FRSHWTR 504	Quantitative Freshwater Analysis	
FRSHWTR 506	Environmental Health of Freshwater Ecosystems	
FRSHWTR 508	Aquatic Technologies	
FRSHWTR 510	Economics, Policy and Management of Water	
<b>Choose one of the following</b>		<b>3</b>
FRSHWTR 513	Field Experimentation and Analysis in Freshwater Sciences	
FRSHWTR 514	Analytical Techniques in Freshwater Sciences	
<b>Required courses</b>		<b>4</b>
ENGLISH 890	Science, Communications, & Public Engagement	
FRSHWTR 900	Colloquium in Freshwater Sciences	
<b>Electives</b>		<b>9</b>
Select 9 credits in consultation with the student's major advisor		
<b>Master's Research and Thesis Credits</b>		<b>6</b>
FRSHWTR 985	Master's Research and Thesis (Up to 6 credits)	
<b>Total Credits</b>		<b>31</b>

### For students admitted Fall 2017 and before

Minimum degree requirement is 30 graduate credits.

Code	Title	Credits
<b>Required courses</b>		<b>6</b>
FRSHWTR 502	Aquatic Ecosystem Dynamics	
FRSHWTR 504	Quantitative Freshwater Analysis	
<b>Select one of the following</b>		<b>3</b>
FRSHWTR 506	Environmental Health of Freshwater Ecosystems	
FRSHWTR 508	Aquatic Technologies	

FRSHWTR 510	Economics, Policy and Management of Water	
<b>Electives</b>		9
Select 9-12 credits in consultation with the student's major professor		
<b>Seminars and Practica</b>		6
FRSHWTR 512	Freshwater Sciences Practicum: (Take two different topics, 2 credits each)	
FRSHWTR 901	Seminar in Freshwater Sciences: (Take two different topics, 1 credit each)	
<b>Master's Research and Thesis Credits</b>		6
FRSHWTR 985	Master's Research and Thesis (Up to 6 credits)	
Total Credits		30

Please see the Graduate School thesis and dissertation formatting requirements (<http://uwm.edu/graduateschool/thesis-dissertation-formatting>) for further information.

## Thesis Defense

The thesis defense is a public presentation of the thesis research followed by an oral defense administered by the Advisory Committee.

## Time Limit

All degree requirements must be completed within five years of initial enrollment.

## Program Requirements

### Major Professor as Advisor

Students in the thesis track must be accepted by a faculty member who will serve as the initial major professor, and be primarily responsible for matriculation. Acceptance or agreement by a faculty member does not constitute formal acceptance into the School of Freshwater Sciences. Prospective thesis-track students are strongly encouraged to communicate with the prospective major professors early in the admission process.

A plan of study is required that identifies the planned courses and timeline for completion of the degree. For the thesis track, this includes coursework and proposed research and is planned by the student in consultation with the major professor and must be approved by the Thesis Advisory Committee.

### Thesis Advisory Committee

The membership of the Thesis Advisory Committee should be established by the end of the student's first semester. The Committee must consist of three members including the M.S. student's advisor as chair (or co-advisors as co-chairs who are graduate faculty members from the School of Freshwater Sciences) and at least two additional members, one of whom must come from outside the student's research focus. Consideration will be given to the inclusion of one external, non-UWM member of the committee. If included as part of the committee, this person would participate in the thesis defense examination. The Committee must meet at least once a year to monitor the student's academic and research progress.

### Proposal Defense and Preliminary Oral Examination

The student must complete a formal oral defense of her or his written thesis proposal. This defense should be made before the end of the third semester and will also serve as the preliminary oral examination. The Thesis Committee decides by simple majority whether the student passes, fails, or must repeat the examination or defense. At the discretion of the Committee, a student who fails the defense or examination may be allowed one additional attempt at successful completion.

### Thesis

The thesis is conducted with oversight from the student's Advisory Committee. The thesis research is expected to be of a caliber sufficient for publication in a peer-reviewed journal. Satisfactory completion of the thesis, including successful defense, is required for graduation. Up to six credits may be awarded for thesis research.