

# ENVIRONMENTAL CONSERVATION: ENVIRONMENTAL OBSERVATION AND INFORMATICS, M.S.

This is a named option in the Environmental Conservation M.S. (<http://guide.wisc.edu/graduate/environmental-studies/environmental-conservation-ms/#text>)

The Environmental Observation and Informatics (EOI) named option integrates cross-cutting Earth observation, technologies, and big data analytics in one unique, 15-month, 32-credit program that combines hands-on, in-person training with distance learning. Our goal is to transform students' technical expertise into integrative synthesis and leadership in environmental observation and interpretation to advance organizational response to environmental change at local, regional, and global scales. At UW–Madison, we push the limits of remote sensing and geospatial analysis to encompass the skills that are increasingly in demand by industry, non-governmental organizations, government agencies, and academia.

The EOI named option is designed for early- to mid-career professionals worldwide who wish to advance to positions of project or program manager, senior analyst, or similar rank. Individuals from diverse professional or educational backgrounds are encouraged to apply. EOI has been built to help individuals develop the expertise that the market demands, focusing specifically on three pillars:

1. Remote sensing and integrated technology: Learn to select and apply the most appropriate and powerful platforms and technologies—including LiDAR, unmanned aerial vehicle (UAV) systems, cloud and social media, and crowd-sourced data—to address today's most pressing environmental challenges.
2. Modeling and analysis: Construct scenarios of environmental phenomena to better understand natural processes and human actions, to predict and project future outcomes, and to conduct robust statistical analyses with distributed data to identify trends and inform management and policy decisions.
3. Innovative leadership: Drive strategic thinking to design and manage the use of observation technologies to advance policy, program direction, and executive decisions.

## 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	This program does not admit in the fall.
Spring Deadline	The program does not admit in the spring.
Summer Deadline	December 1
GRE (Graduate Record Examinations)	May be required in certain cases; consult program.
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 ( <a href="https://grad.wisc.edu/apply/requirements/#english-proficiency">https://grad.wisc.edu/apply/requirements/#english-proficiency</a> ).
Other Test(s) (e.g., GMAT, MCAT)	n/a
Letters of Recommendation Required	2

The priority deadline for submitting an application to the Environmental Observation & Informatics (EOI) named option and for tuition assistance is December 1. The secondary deadline for international applicants is February 1, and April 1 for domestic applicants. International applicants should contact the EOI program coordinator as soon as possible to ensure all paperwork and documents are included.

Applications are submitted online (<https://apply.grad.wisc.edu/>)#through the UW–Madison Graduate School. When applying, select the summer term for the calendar year you are applying for (e.g. summer 2019), then choose Environmental Observation and Informatics in the drop-down tab. Prospective students who apply by December 1 will be informed of their admissions status by late January.

Individuals with diverse professional and academic backgrounds are encouraged to apply. Applicants must have received a bachelor's degree from an accredited four-year institution with an undergraduate GPA of 3.0 or higher. Applicants with GPAs below 3.0 may be considered for admissions under special circumstances. Because introductory GIS is not taught in this program, applicants should have introductory GIS skills prior to the start of the program. This experience can be demonstrated through course work, professional experience, a portfolio (in the supplemental application), or a GIS certificate/degree. If an applicant does not have this experience, they should state this in their letter of interest and explain how, if accepted, introductory skills will be developed before the start of the program.

Complete applications will include all items below. Admissions decisions will be based on the entirety of each applicant's credentials.

1. Resume or CV
2. Statement of interest
3. Two letters of recommendation (submitted via the online application)
4. Unofficial undergraduate transcript (official transcript will be requested prior to final acceptance)
5. Supplemental application and professional portfolio (see text below for more information)

6. IELTS or TOEFL scores (if applicable, see below)
7. GRE (dependent on undergraduate major and GPA)

As part of the online supplemental application, applicants will submit a portfolio that showcases their quantitative or GIS experience. The portfolio should consist of documents that will help assess each applicant's proficiency and readiness for the program. Examples of these documents can include; maps developed in a GIS software or through remote sensing image analysis, figures from analysis and reports, selected slides from professional presentations, or copies of certificates, awards, and completed trainings.

For international applicants whose bachelor's degree is not in English, TOEFL or IELTS scores are required. Please visit the UW-Madison Graduate School requirements webpage (<https://grad.wisc.edu/apply/requirements/>) for complete information.

## 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.

## PROGRAM RESOURCES

Students enrolled in this program are not eligible to receive tuition remission from graduate assistantship appointments at this institution.

This applies to both the Environmental Conservation and the Environmental Observation & Informatics named options. We encourage all students to apply for our Environmental Conservation tuition assistance program, and to seek additional sources of grants, scholarships, or loans.

For more funding information, visit the program's website: <https://nelson.wisc.edu/graduate/professional-programs/costs-and-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
No	No	No	Yes	Yes

#### 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

Requirement Detail	
Minimum Credit Requirement	32 credits
Minimum Residence Credit Requirement	32 credits
Minimum Graduate Coursework Requirement	Half of degree coursework (16 credits out of 32 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide ( <a href="https://registrar.wisc.edu/course-guide">https://registrar.wisc.edu/course-guide</a> ( <a href="https://registrar.wisc.edu/course-guide/">https://registrar.wisc.edu/course-guide/</a> )).
Overall Graduate GPA Requirement	3.00 GPA required.
Other Grade Requirements	The Graduate School requires a cumulative GPA of 3.0 in all coursework (300 and above) taken as a graduate student unless program-specific conditions require higher grades for probationary status. The EOI named option requires a minimum grade of B in each course to satisfy all curriculum requirements. Grades of Incomplete (I) are considered to be unsatisfactory if they are not removed during the next enrolled semester.
Assessments and Examinations	All students must submit a leadership placement proposal and work plan, complete a professional leadership experience (independent practice) of at least eight weeks, followed by a substantial written report or deliverable for their host organization, and an exit seminar presentation.
Language Requirements	No language requirements.

## REQUIRED COURSES

Code	Title	Credits
ENVIR ST/ F&W ECOL/G L E/ GEOG/GEOSCI/ LAND ARC 371	Introduction to Environmental Remote Sensing	3
ENVIR ST/ CIV ENGR/ LAND ARC 556	Remote Sensing Digital Image Processing	3
STAT 679	Special Topics in Statistics	3

ENVIR ST 950	Environmental Monitoring Seminar	2
ENVIR ST 956	Advanced Environmental Remote Sensing	3
ENVIR ST 971	Environmental Sensing Technologies	3
ENVIR ST 974	Environmental Conservation Cohort Seminar	1
ENVIR ST 976	The Practice of Conservation Biology and Sustainable Development	1
ENVIR ST 978	Environmental Conservation Tools Modules <sup>1</sup>	6
ENVIR ST 999	Advanced Independent Study	4
Electives in consultation with advisor. Most electives will be taken in ENVIR ST. Please check with program about electives outside of ENVIR ST.		3
<b>Total Credits</b>		<b>32</b>

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Students should work with their advisor to make sure the topic offered counts toward the EOI program.

Students in this program may not take courses outside the prescribed curriculum without faculty advisor and program director approval. Students in this program cannot enroll concurrently in other undergraduate or graduate degree programs.

## 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

No credits from another institution are allowed to count toward the program.

##### UW–Madison Undergraduate

With program approval, up to six credits of selected coursework taken as a UW–Madison undergraduate student may count toward the EOI program curriculum. Those credits taken as an undergraduate student cannot count toward the graduate residence or graduate coursework requirements, but they can count toward the graduate degree requirement if the courses were at least 300 level and completed within three years of matriculating in the program.

##### UW–Madison University Special

With program approval and payment of the difference in tuition (between special student and graduate student), up to six credits of selected coursework taken as a UW–Madison special student may count toward the EOI program curriculum. Those credits taken as a special student can

count toward the graduate residence and graduate degree requirements if the courses were at least 300 level and completed within three years of matriculating in the program, and they can also count toward the graduate coursework requirement if the courses were 700 level or above.

### PROBATION

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above). This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School. The status of a student falls into one of the following three categories:

1. Good standing (progressing according to standards; any funding guarantee remains in place).
2. Probation (not progressing according to standards but permitted to enroll; loss of funding guarantee; specific plan with dates and deadlines in place in regard to removal of probationary status).
3. Unsatisfactory progress (not progressing according to standards; not permitted to enroll, dismissal, leave of absence or change of advisor or program).

### ADVISOR / COMMITTEE

Every student in the program will be required to have an advisor. Program staff will work with the student to identify an advisor during the spring semester. Once an advisor has been identified, the student is expected to maintain communication with their advisor to ensure they are making satisfactory progress toward their degree.

### CREDITS PER TERM ALLOWED

15 credits

### TIME CONSTRAINTS

If a student has been absent for a semester or more, they must file a new Graduate School application for admission and submit it with a new application fee. UW–Madison master's degree students who have been absent for five or more consecutive years lose all credits they had earned before their absence. The Graduate School will not count that coursework toward their graduate residence, graduate degree, or graduate coursework requirements. Students who have been absent for three or more consecutive years cannot count credits they had earned before their absence toward EOI named option requirements.

### 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)

This document was reviewed by the Graduate Student working group and approved by vote of Nelson Institute Governance with subsequent review by campus HR; please note that this was prior to the revision of GAPP by campus in 2019-20, as well as present and expected changes in 2020 after to Title IX, Office of the Dean of Students, etc.

### Preamble:

Any student who feels that they have been treated unfairly by a faculty or staff member has the right to seek redress and to receive a hearing of the grievance following these procedures. It applies only to grievances about those persons who are employees of the Nelson Institute, who teach for the Nelson Institute or otherwise are subject to administrative oversight by the Institute. The complaint may concern course grades, program admission, classroom treatment, hostile or intimidating behavior, or any other issue. Note that these procedures are for students bringing grievances to the Nelson Institute, they do not cover issues relating to the classroom behavior of students which must be referred to the Dean of Students.

The procedures outlined below are used in the Nelson Institute to ensure a prompt and fair hearing of complaints, and to protect the rights of both the student and the person at whom the complaint is directed. These policies describe formal procedures. A student is free to bypass these procedures if they do not wish for an Institute sanctioned resolution.

A complaint covered here may involve issues that either require or that would benefit from being directed to one of the campus programs or offices addressing complaints and grievances. See <https://compliance.wisc.edu/> and [https://compliance.wisc.edu/wp-content/uploads/sites/102/2018/09/Safe-Learning-and-Work-Guide.Fall\\_.FY19-Accessible.pdf](https://compliance.wisc.edu/wp-content/uploads/sites/102/2018/09/Safe-Learning-and-Work-Guide.Fall_.FY19-Accessible.pdf) (Accessed Oct. 2020). Please review the most recent information on Title IX on campus, as guidelines and contacts may change. Graduate students should review information at <https://grad.wisc.edu/documents/grievances-and-appeals/> (Accessed Feb. 2019). Undergraduate students may wish to review information available in the undergraduate course catalog. There they will find this option presented: "For assistance in determining options, students can contact the on-call dean in the Dean of Students Office, 608-263-5700, Room 70 Bascom Hall, Monday- Friday, 8:30 a.m.-4:30 p.m."

Also, students should know that academic administrators may be required to report instances of sexual harassment or violence in accordance with university policy and the Clery act. (See: <http://uwpd.wisc.edu/crime-data/clery-act/> Accessed Oct. 2018).

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 for Equity and Diversity.

Questions about Nelson Institute procedures can be directed to the Associate Dean for Research and Education.

### Procedures:

1. If possible, the student (complainant) should first talk with the person against whom the grievance is directed to advise them of their complaint and to determine if resolution is possible.
2. If the student is not satisfied, or if they do not feel comfortable addressing the person to whom the grievance is directed, they should ask to speak to the immediate supervisor of the person involved. If the complaint is directed against a teaching assistant, the student should talk to the TA's supervisor, who is usually the course professor. If the student grievance concerns a faculty or staff member in Nelson, the next formal step is for the student to meet with the Associate Dean for Research and Education. If the complaint is not resolved at this level, the student may continue to the next step (4).
3. It is recognized that a student may be reluctant to bring their grievance to the person against whom the complaint is directed, or to their supervisor, or to anyone else in the administrative hierarchy. In that case, the student should seek out a person who can guarantee confidentiality to the extent allowed by the law and university policy and provide non-judgmental advice as to appropriate next steps. Note that if criminal activity is involved confidentiality cannot be guaranteed. If a student does not know of any suitable person, they may approach any member of the Nelson Institute Academic Programs staff who will be able either to serve as a confidential discussant or who will be able to direct the student to someone who can assure confidentiality. Their role is to be that of Ombuds, meaning that they are not to take a position with respect to the validity of the grievance. Their role is to advise the student as to appropriate next steps.
4. To start a formal grievance process, the student must submit the grievance in writing to the Nelson Institute Associate Dean for Research and Education (hereafter Associate Dean) as soon as possible. An email for which receipt is acknowledged will be considered a written submission.
5. On receipt of the written complaint, the Associate Dean will acquaint themselves with the issues. This may involve face to face meetings or other means of establishing the facts in dispute. The Associate Dean will have the option of proposing a resolution. If the proposed resolution is accepted by parties directly involved, the matter will be considered settled at this level. Relevant documents will be archived by the Office of the Assistant Dean for Administration. At any point in the proceedings after the receipt and acknowledgement of the grievance by the Associate Dean, the complainant or the compliance will have the option of requesting that the matter be referred to an ad hoc committee. This request must be submitted in writing and acknowledged by the Associate Dean.

6. If the matter cannot be settled through the mediation of the Associate Dean, or if the Associate Dean has concluded that the case merits further attention, or if the complainant has requested that the matter be referred to an ad hoc committee an ad hoc committee will be appointed by the Dean of the Nelson Institute or their designee. The committee will consist of at least three members. Within 10 working days, the student will be allowed to revise the complaint or to add material to the complaint document to be provided to the committee. The complainant may request a change in committee membership, but the final decision on the committee will remain with the Dean. The committee may request a written response from the person toward whom the complaint is directed. This response shall be shared with the person filing the grievance. The ad hoc committee will meet to discuss the case. They are authorized to seek additional information if they feel it is necessary. They will convey their written decision regarding the case including any recommendations for remediation or mediation to the Associate Dean within 30 working days from the charge to the committee. The Associate Dean will provide a copy of the committee's written decision to the student regarding the case within 10 working days of receiving the committee's report; the Associate Dean will also confirm that the past record on file of any grievances regarding the parties involved has been investigated; and, the Associate Dean will provide the student a statement outlining the formal plan of steps that will be taken officially on the part of the Nelson Institute.
7. The complainant then has the option of taking their grievance to the university level. There are several options available. Consult websites referenced above.
8. The written documents relevant to the grievance will be archived in hard copy and electronic form as appropriate in a "Grievance Record" by the office of the Assistant Dean of Administration and will be maintained for a minimum of five years.
9. The cumulative record involving any of the parties to a grievance will be reviewed each time a formal grievance is presented as in Step 4, above, in order to determine whether the pattern of grievance, such as past filings, indicates any actions are warranted.

## OTHER

Because of the immersive nature of our program, with condensed time on campus and remote experiences, EOI students are only eligible for campus appointments that total 30% time or less, or hourly work. We encourage all students to apply for our EOI program scholarship, and to seek additional sources of grants, scholarships, or loans. Students in the EOI program are not permitted to seek dual degrees or take courses outside of the listed required coursework.

## 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.

For more information about professional development and careers with the degree, visit the program's website: <https://nelson.wisc.edu/graduate/professional-programs/careers/>

## PEOPLE

### Faculty Executive Program Committees

Environmental Conservation Program Committee: Timothy Van Deelen (program chair), Holly Gibbs, Zuzana Burivalová, Alberto Vargas, Rob Beattie, Steph Tai (ex officio)

Environmental Observation & Informatics Program Committee: Annemarie Schneider (program chair), Mutlu Ozdogan, Steph Tai (ex officio)