



**Oregon State**  
University

# Water Resources Engineering

Graduate Information Handbook<sup>1</sup>  
For both Masters of Science and Doctoral (Ph.D.) students  
Academic Year 2023-2024

Water Resources Graduate Program  
Oregon State University  
124 SW 26<sup>th</sup> Street | 116 Gilmore Hall  
Corvallis, Oregon 97331

For additional program information, visit the Water Resources Graduate Program [web site](#). Visit the OSU Graduate School website, <https://gradschool.oregonstate.edu/> for Graduate School information.

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<sup>1</sup> Thanks to the OSU Geography Program and the Graduate School for the Handbook template and the Public Policy program for many details including what makes a good research paper. Updated 08-23-2023.

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## I. General Contact Information

### **Director, Water Resources Graduate Program**

Dr. Stephen Good ([Stephen.Good@oregonstate.edu](mailto:Stephen.Good@oregonstate.edu); 7-1215)

The Director of the Water Resources Graduate Program is involved in admission of graduate students, provides general orientation to the WRGP, ensures that the graduate program is implemented and standards are maintained, and assists in the solution of any major problems that may arise during a student's programs.

### **Associate Director WRE**

Dr. Frank Chaplen ([Frank.Chaplen@oregonstate.edu](mailto:Frank.Chaplen@oregonstate.edu))

The Associate Director of the Water Resources Engineering degree program is involved in admission of graduate students, the development and review of required courses, provides oversight of WRE program, and will advise and guide students as necessary.

### **Administrative Assistant**

Catherine Mullins ([Catherine.Mullins@oregonstate.edu](mailto:Catherine.Mullins@oregonstate.edu); 7-7663)

The Administrative Assistant is the administrative point person for the WRGP and is the person to go to for items such as scheduling of classes. GTA assignments, travel pre-approval and re-imburement, and course overrides

**WRGP Web site:** <http://oregonstate.edu/gradwater/>

### **University Emergency Contacts**

OSU is dedicated to providing a safe and secure learning and living environment for its community members. [The Department of Public Safety](#) provides resources, information, emergency phone numbers, and protocols for maintaining personal safety. Sign up for [OSU Alerts](#) to get timely messages delivered right to your phone or inbox regarding university closures and other emergencies.

## I. Schedule Options

### A. M.S. Options

#### i. Schedule for M.S. Students

##### a. *Thesis Program<sup>2</sup> (Full-time Students)*

<b>Activity</b>	<b>When</b>
Identify at least two faculty members you are interested in working with. Contact them prior to or during the application process to explore opportunities to work with them.	Prior to application
Confirm major advisor.	After application, prior to acceptance.
Initial advising and selection of first term classes	Before first term classes begin
Select two additional committee members and arrange for a Graduate Representative through the Graduate School; convene committee to discuss program of courses and research direction; file graduate program with Graduate School	Convene committee meeting in 1st-2nd term; program of study must be filed before completing more than 18 credits of graduate coursework, usually in 2nd term.
Prepare research proposal in consultation with major professor; after approval, circulate proposal to all committee members and revise proposal based on comments	1st-3rd term
Conduct thesis research. Seek financial support for proposed project as needed.	Ongoing and as needed
Complete courses in Graduate Program	Recommended by 4th term
Submit draft of thesis to major professor; revise as necessary	At least one term before oral examination
9. Submit copies of complete thesis to committee members	9. At least two weeks before oral examination.
10. Schedule final defense with Graduate School and submit pretext pages to Graduate School for editing	10. At least two weeks prior to oral examination. Check with Graduate School for deadlines 2

<sup>2</sup> Check with Graduate School for specific deadlines for graduation.  
<https://gradschool.oregonstate.edu/current-students/masters-students#deadlines>

11. Oral examination (thesis defense)	11. 4th term or later, but only with approval of major professor
12. Submit one electronic PDF copy of the final thesis to the advisor, and one PDF copy to OSU ScholarsArchive with the signed ETD form.	12. Within six weeks of oral examination

*b. Schedule for Non-thesis Program*

(Full-time Students)

<b>Activity</b>	<b>When</b>
Identify at least two faculty members with whom you are interested in working. You may wish to contact them prior to or during your application process.	Prior to application
Confirm major advisor.	After application, prior to acceptance.
Initial advising and selection of first term classes	Before first term classes begin
Select two additional committee members and convene a meeting to discuss program of courses and project direction; file graduate program with Graduate School	Convene committee meeting in 1st-2nd term; program of study must be filed before completing more than 18 credits of graduate coursework
Prepare project proposal in consultation with major professor	1st-3rd term
Conduct project research	Ongoing
Complete courses in Graduate Program	Recommended by 4th term
Submit draft of project paper to major professor	At least one month before oral examination
Revise and resubmit project paper based on major professor's comments to committee members	At least two weeks before oral examination. Check Graduate School deadlines 2
Oral examination	4th term or later, but only with approval of major professor
12. Submit an electronic PDF copy to ScholarsArchive	12. After final approval by major professor

## ii. Schedule for Ph.D. Students<sup>3</sup>

(Full-time Students)

<u>Activity</u>	<u>When</u>
Identify at least two faculty members you are interested in working with, and contact them prior to or during the application process.	Prior to application
Confirm major advisor.	After application, prior to acceptance.
Initial advising, selection of first term classes	Before first term classes begin
Select three additional committee members plus a graduate representative. Convene a program meeting to discuss coursework plan and research.	Before end of 3rd term
File Program of Study form with Graduate School.	By end of second winter term
Prepare research proposal in consultation with major professor. Hold a proposal review meeting with your committee for their input.	1st - 9th term. Program of study must be on file with the Water Resources Graduate Program
Seek financial support for research.	Ongoing
Complete courses on Graduate Program.	5th - 9th term
Prepare for qualifying exams.	Ongoing
Complete preliminary qualifying exam -at minimum an oral examination	After completing 3, 4, 5 & 8 above.
Advanced to Candidacy	Upon passing #9 above
Dissertation research and writing completed.	At least 2 wks. prior to scheduling defense.
Submit pretext pages of dissertation to Graduate School for editing.	At least 2 weeks prior to defense, when scheduling final defense. See Graduate School deadlines <sup>2</sup>
Dissertation defense.	Within 5 years of #10 above.
Submit one electronic copy (pdf file) of dissertation to OSU Library ScholarsArchive, submit signed ETS form to the Graduate School; provide advisor an electronic copy, too.	Within six (6) weeks of final oral examination, shorter deadlines may apply at end of term to avoid having to register for the following term; check with the Graduate School website for deadlines!
Schedule an exit interview	Within 6 weeks of defense

## III. Program Information and Policies

### a. Overview and background of program:

This handbook was developed to provide information to graduate students in the Water Resources Engineering program at Oregon State University. It consolidates information for students entering the degree program in **Fall 2023 or later**. Please refer to the OSU Graduate School web site <https://gradschool.oregonstate.edu/> for the *Graduate School Guide to Success* and for first-hand information on important Graduate School regulations. Please watch the short video at:

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<sup>3</sup> Check with Graduate School for specific, up to date deadlines for graduation <https://gradschool.oregonstate.edu/current/doctoral-students#deadlines>

<https://gradschool.oregonstate.edu/video/9491-completing-your-degree-graduate-student> for an overview of the process and important information.

The Water Resources Engineering degree program is designed to broadly train students to undertake life-long careers in water resources engineering and system design. Students in the program have the option to focus on groundwater, surface water, or watershed engineering. Students will be required to take a minimum of 12 (M.S.) or 15 (Ph.D.) credits of graduate level engineering courses, and at least 6 (M.S.) or 9 (Ph.D.) credits of water science courses to broaden their expertise in areas of the program beyond engineering. Water science courses may be selected from non-engineering departments across the campus, and are required to provide the students with the scientific context to understand the broader aspects of water resource systems.

Students completing the WRE degree program will meet the coursework requirements to attain Professional Hydrologist certification through the American Institute of Hydrology (AIH). All students in WRE will be required to show competence in mathematics to the level of applied differential equations (MTH 256), have a year of calculus-based physics and chemistry prior to graduation. Students graduating from the WRE degree program will have met three sets of requirements:

- **Entrance Requirements** All students entering the WRE degree program will be required to show basic competence in chemistry, physics, mathematics to integral calculus, and advanced competence (upper-division) in one science or engineering field.
- **Program Requirements** Students will complete a standard M.S. (45 cr.) or Ph.D (108 cr.) program based in water resources engineering but allowing for significant coursework in another field.
- **Exit Requirements** Students graduating from the program must show that they have a total of 37 cr. of water-related coursework based on the American Institute of Hydrology (AIH) standards <https://www.aihydrology.org/>. Up to 22 credits of this may be met by coursework taken elsewhere, including courses taken as an undergraduate, though it is expected that many of the requirements will be met by OSU coursework.

Required courses within each WRE focus area are identified in Appendix A and B. Students are also expected to include fundamentals of earth science (from geosciences, atmospheric sciences, or soil science).

### b. Learning outcomes/competencies

See Appendix G for information on Learning Outcomes and Assessment of those outcomes



### i. Degree options

The WRE degree program offers the Master of Science degree and Doctor of Philosophy (Ph.D) degree, with options for minor in Water Resources Science, Policy and Management, or another field.

### ii. Concentrations

There are no specific areas of concentration in the WRE degree program, however, students can focus either on hydrology or aquatic chemistry for meeting the required 15 credits of AIH Category I courses.

### c. Coursework Requirements

#### i. Masters' coursework requirements:

Requirements for the M.S. degree are tailored to reflect the diversity of backgrounds of incoming students and to assure that everyone finishes the program with a common core of water resources knowledge beyond their particular specialization.

This is accomplished through program requirements that include 6 credits of core Water Resources Graduate Program courses:

- WRP 524 Sociotechnical Aspects of Water Resources (3 cr.);
- WRP 507 Seminar and WRP 505 Journal Club (offered Fall term);
  - or WRE 507 Seminar and WRE 505 Journal Club (offered Winter term)
  - or WRS 507 Seminar and WRS 505 Journal Club (offered Spring term), and
- One more 1 cr. seminar (WRP, WRE, or WRS 507, BEE 507) - this seminar does not have to be taken with journal club.

In addition, students in the WRE degree program are required to take between 6-12 thesis credits (WRE 503), as well as additional elective courses to meet the 45-credit minimum requirement (See Appendix A Checklist). Students will work with their advisor and committee to select elective courses and tailor an appropriate program of study that meets their research needs, AIH requirements, and can be accomplished in two years. The student's achievement of the Graduate Learning Outcomes (see Appendix G) for the program will be assessed at the final examination.

A grade point average of 3.0 (a B average) is required for all courses taken as a graduate student (even if they are undergraduate courses), and for courses included in a graduate program. Neither grades below C nor S/U grades are accepted on a graduate program.

#### ii. Ph.D coursework requirements:

Requirements for the Ph.D degree are tailored to reflect the diversity of backgrounds of incoming students and to assure that everyone finishes the program with a common core of water resources knowledge beyond their particular specialization.

This is accomplished through program requirements that include 9 credits of core Water Resources Graduate Program courses:

- WRP 524 Sociotechnical Aspects of Water Resources (3 cr.);
- WRP 507 Seminar and WRP 505 Journal Club (offered Fall term);
  - *or* WRE 507 Seminar and WRE 505 Journal Club (offered Winter term)
  - *or* WRS 507 Seminar and WRS 505 Journal Club (offered Spring term),and
- One more 1 cr. seminar (WRP, WRE, or WRS 507) - this seminar does not have to be taken with a 505 journal club.

In addition, students in the WRE degree program are required to take additional coursework to meet the 108 credit requirement (See WRE Checklist, Appendix A as well as Appendix B). Students will work with their advisor to select elective courses and tailor an appropriate program of study. The student's achievement of the Graduate Learning Outcomes (see Appendix G) for the program will be assessed at the final examination.

A grade point average of 3.0 (a B average) is required for all courses taken as a graduate student (even if they are undergraduate courses), and for courses included in a graduate program. Neither grades below C nor S/U grades are accepted on a graduate program.

#### IV. Research Requirements

Graduate students are required to demonstrate the ability to define researchable problems, design research approaches, analyze relevant data, synthesize results, and report research findings in a succinct and logical manner.

**For the Master's degree only:** The WRE degree program allows students two alternatives to demonstrate their research competence. Students must complete either a research paper or a thesis. The student and the major professor will make the decision on which option is most appropriate to a student's program jointly. The nature of the research topic, student's circumstances, time frames, career aspirations, advisor's availability, and research funding will all play a factor in making this decision. The learning outcomes and assessment methods are different for research carried out on the thesis track compared to the project-based research paper. One is not better than another. They are different.

Other students, hoping to acquire a set of skills and methods that can be applied to water resources issues in a governmental, non-governmental organization, or industry setting may choose, instead, to write up a project paper. The knowledge and skills acquired through coursework and an internship experience are applied in a capstone project and associated report that is relevant to the practice of science-based water resources engineering and is effectively communicated to its target audience. This

report may be produced in conjunction with an internship experience. Appendix C compares the thesis and non-thesis options.

**For the Doctoral degree only:** The doctoral degree requires original research that makes a contribution to an academic discipline via a publication or publications that are judged to be of sufficient quality to appear in a peer reviewed journal. Publication in a journal as lead or co-author is expected (although not required) after the defense of the dissertation.

## V. M.S.-Thesis, M.S.-Project or Ph.D-Dissertation

### a. M.S.-Thesis

The Thesis: While the thesis and research options share many similarities, the thesis is a more substantial commitment to research. Its length is not limited, and the process of research, writing, and defending the research usually takes place over several (3-4) terms. The thesis option is different from the non-thesis option in several ways including:

- The work is a substantial original contribution to the body of knowledge in the student's field,
- supervision of the thesis research is by a four-member committee, including a person chosen from a list of Graduate Council representatives;
- The thesis style is determined by the Graduate School document, Preparation of the Thesis, available from the Graduate School website. The Graduate School examines every thesis to ensure compliance with style requirements.
- Students can also choose to write their thesis as "publishable papers." This option is usually two publishable papers, which must be related in their overall research theme. A publishable paper is one that is targeted to a specific journal and is deemed publishable to the student's graduate committee. Student's using this style option must also include an introduction, literature review, and conclusion that tie the paper together into a common theme, all of which are bound together and submitted to the program as a thesis. The student's graduate committee and major professor must agree to this option before the student proceeds.
- A copy of the pretext pages of the Master's Thesis must be presented to the Graduate School for editing when scheduling the final oral examination at least two weeks prior to the examination. Additional copies of the thesis are distributed to the student's committee.

After consultation with the major professor, the student prepares a proposal, which includes a statement of the problem and the research design. Appendix D describes the components of the proposal. The student meets with the program committee to review

the proposal and revise as necessary. After obtaining approval, the student carries out the research and prepares a finished draft of the thesis.

Since the thesis must meet the approval of a four-member committee, the major professor will insist on a high-quality product. If the work does not meet this standard, it will be redone or revised as often as necessary to meet the professor's expectation for a defensible thesis. When the major professor is satisfied with the thesis, the defense is scheduled and copies of the thesis are distributed to the committee for review at least one week prior to the scheduled defense.

### b. M.S.-Project

The Research Paper option is designed to expose students to research through a process that is more structured and less open-ended than the thesis option. As such, it can be done within one term if the student is well-organized, although early identification of the problem is recommended. Students often take longer to complete the process. Students should enroll for Research credits in their major professor's department to maintain full-time status while reducing course load to devote energy to the research paper.

Ideas for the research paper may come from other classes, work experience, or internships and will usually proceed through three steps:

After consultation with the major professor, the student prepares a proposal, which includes a statement of the problem and the research design. Appendix D describes the components of the proposal. After obtaining approval, the student carries out the research and prepares a finished draft of the paper. See below for more specific details about the research paper. The major professor will provide at least one critical review of the paper in draft form. When the major professor decides the paper is ready to defend, the student will prepare a final copy of the research paper and distribute to committee members for review at least two weeks prior to the defense.

The student schedules a meeting for the committee to come together to hear a defense of the paper and an examination to test the student's ability to integrate and interpret material learned in the program with emphasis on the work presented in the paper. Forms for scheduling the defense are available at the Graduate School website.

The research paper can be on any subject in water resources engineering, as agreed upon by your committee. There are no limitations for preferences for a particular theoretical or methodological approach. The research paper should be at least 25 pages in length. The paper will be judged on how well the student addresses four goals:

- Illustrates an in-depth, detailed and nuanced understanding of a specific issue, topic, or question in water resources engineering

- Illustrates an awareness of the theoretical issues raised in the appropriate literature.
- Expresses ideas, concepts, and arguments with precision and rigor.
- Enlarges the reader's understanding of the issue and topic.

The research paper needs to have the following elements:

- **Title and Signature Page.** The paper needs a title page and a committee signature page similar to that specified in the requirements for Theses and Dissertations at OSU.
- **Introduction and Statement of the Problem:** The paper needs to have a clearly and concisely stated question, essay, and argument. The first pages should clarify the topic and how the subject will be approached and analyzed.
- **Literature Review:** The paper needs an extensive review of the literature on the subject. This review shows that you have immersed yourself in the subject, have read extensively about it, and have drawn your ideas and arguments from a variety of sources. The length of your literature review will vary by subject. The main purposes of the literature review are to show the reader that you know the subject and that you can place your thinking into ongoing research in the subject area. Your committee can help identify the relevant literature.
- **Discussion:** This section describes your results, analysis, and arguments in a readable and rigorous manner.
- **Conclusion:** This section summarizes your argument and shows how your work enhances our understanding of the subject.

Students are encouraged to post the final, revised version of their project paper on ScholarsArchive in the OSU Library (Water Resources community).

### c. Ph.D-Dissertation

*The Dissertation:* is a substantial commitment to research. Its length is not limited, and the process of research, writing, and defending the research usually takes place over several (3-4) terms:

- The work is a substantial original contribution to the body of knowledge in the student's field,
- supervision of the dissertation research is by a four-member committee, including a person chosen from a list of Graduate Council representatives;
- The dissertation style is determined by the Graduate School document, Preparation of the Thesis, available from the Graduate School website. The Graduate School examines every dissertation to ensure compliance with style requirements.

- Students can also choose to write their dissertation as “publishable papers.” This option is usually three publishable papers, which must be related in their overall research theme. A publishable paper is one that is targeted to a specific journal and is deemed publishable to the student’s graduate committee. Student’s using this style option must also include an introduction, literature review, and conclusion that tie the paper together into a common theme, all of which are bound together and submitted to the program as a dissertation. The student’s graduate committee and major professor must agree to this option before the student proceeds.
- A copy of the pretext pages of the Dissertation must be presented to the Graduate School for editing when scheduling the final oral examination at least two weeks prior to the examination. Additional copies are distributed to the student’s committee.

After consultation with the major professor, the student prepares a proposal, which includes a statement of the problem and the research design. Appendix D describes the components of the proposal. The student meets with the program committee to review the proposal and revise as necessary. After obtaining approval, the student carries out the research and prepares a finished draft of the dissertation.

Since the dissertation must meet the approval of a five-member committee, the major professor will insist on a high-quality product. If the work does not meet this standard, it will be redone or revised as often as necessary to meet the professor’s expectation for a defensible dissertation. When the major professor is satisfied with the dissertation, the defense is scheduled and copies of the dissertation are distributed to the committee for review at least two weeks prior to the scheduled defense. See the Graduate School website for up to date information on deadlines.

## VI. Professional Experience

Every graduate student is encouraged to include some experience of a professional nature in his or her program. If they have never worked in water resources organization, it is highly encouraged that they schedule a one-term internship with an outside organization. Students interested in internships should work with their major advisor and with the Associate Director to identify available internships and expectations for academic performance.

In addition to or in lieu of a course such as GEO 518, each student should include other opportunities for professional development in their work before completion of the degree. Examples include:

Presentation of research results in a professional context such as:

- Professional meeting

- Internship report to client
- A seminar, open to the public (required for thesis students)
- Preparation of a competitive grant proposal

## VII. Responsibilities for Completing Graduate Program

**The student** will assume the major responsibility for their own graduate program, follow program and university requirements, meet all deadlines, and initiate all steps involved in obtaining the degree. The student should meet regularly with the major advisor to discuss progress or difficulties in research, course work, or other matters. If experiencing major difficulties with the major professor, the student should discuss the matter with the Associate Director of their sub-field or the Director of the Water Resources Graduate Program.

**The major professor** will advise and guide students in their graduate programs, be informed of student progress and difficulties, edit research proposals and theses before they are given to committee members, encourage active participation in seminars, regional and national scientific meetings, and include students in other professional activities as appropriate.

**Members of the student's graduate committee** will serve as experts in certain specialized fields, as interested editorial critics of the student's writing (especially the dissertation), and as participants in the various meetings and examinations held during the student's program.

## VIII. Responsibilities for Completing Graduate Program

The student will assume the major responsibility for their own graduate program, follow program and university requirements, meet all deadlines, and initiate all steps involved in obtaining the degree. The student should meet regularly with the major advisor to discuss progress or difficulties in research, course work, or other matters. If experiencing major difficulties with the major professor, the student should discuss the matter with the Associate Director of their sub-field or the Director of the Water Resources Graduate Program.

The major professor will advise and guide students in their graduate programs, be informed of student progress and difficulties, edit research proposals and theses before they are given to committee members, encourage active participation in seminars, regional and national scientific meetings, and include students in other professional activities as appropriate.

Members of the student's graduate committee will serve as experts in certain specialized fields, as interested editorial critics of the student's writing (especially the thesis), and as participants in the various meetings and examinations held during the student's program.

## IX. Description of the requirements for the final defense

### a. The final defense for the thesis-based degree

When the major professor is satisfied with the thesis, the defense is scheduled and copies of the thesis are distributed to the committee for review at least two weeks prior to the scheduled defense. The student schedules a meeting for the committee to come together to hear a defense of the paper and an examination to test the student's ability to integrate and interpret material learned in the program with emphasis on the work presented in the paper. Forms for scheduling the defense are available at the Graduate School website.

A successful defense is determined by a vote of the committee. Even at the defense, committee members may insist on further revisions of the thesis before it is accepted. The Graduate School rules provide for a maximum of six weeks for revisions after the thesis defense. If more than six weeks elapse, a re-examination of the student may be required.

The oral defense focuses on the thesis, although questions pertaining to coursework are allowed. See Figure 1 for a typical defense agenda. Thesis presentations are open to the public, although the examination is closed. Defenses typically take about 2 hours to complete.

After a successful defense, a revised electronic (i.e., a pdf file) copy of the thesis is submitted to OSU Library ScholarsArchive (in the Water Resources community). An Electronic Thesis and Dissertation Submission Approval form (ETD) must be signed by the major advisor and the Director of the Water Resources Graduate Program and submitted to the Graduate School. See the Graduate School website for more information about electronic submittal of the thesis. The ETD form is submitted to the Graduate School along with a copy of the title page once the final thesis/dissertation is approved and uploaded to ScholarsArchive.

The Major Professor shall chair the program meeting and the examination portion of the defense. The Graduate Council Representative chairs the portion of the meetings that involve the evaluation of the student's performance on a thesis-option oral defense.



Figure 1. Typical Agenda for Oral Defense

Call to order and introductions  
Purpose and format of meeting  
Public presentation by student (approximately 20-30 minutes)  
Open question and answer (approximately 15 minutes)  
Visitors asked to leave and committee break (if necessary)  
Review and questioning of student by committee (this can include questions about both the research and the coursework)  
Student excused  
Committee discusses student's performance  
Committee votes on performance of student  
Student returns and results announced to student  
Graduate School forms signed

### b. The final defense for the project-based degree

When the major professor is satisfied with the project paper, the defense is scheduled and copies of the paper are distributed to the committee for review at least two weeks prior to the scheduled defense. The student schedules a meeting for the committee to come together to hear a defense of the paper and an examination to test the student's ability to integrate and interpret material learned in the program with emphasis on the work presented in the paper. Forms for scheduling the defense are available at the Graduate School website.

The student should be fully prepared to answer any question from committee members as it relates to all course work and to go beyond description of the concepts to engage in a critical discourse that demonstrates the student's critical analysis and synthesis of all course work. The final oral defense takes approximately 90 minutes to 2 hours. See Figure 1 for a typical defense agenda.

The first portion of a final defense is open to the public and includes a presentation by the student about the research. Faculty members and fellow students are encouraged to attend. After the presentation, audience members leave and the student is examined by committee members. At the conclusion of the examination, committee members meet in private to discuss the presentation and examination, vote whether to pass the student, and sign off on the examination form to the Graduate School.

If a student fails in the first attempt at the oral defense, a second re-examination may be held at the request of the student's major advisor and committee. A waiting period of three months between the failed defense and a re-examination is required to allow time for preparation of a successful defense.

Students are encouraged to post the final, revised version of their project paper on ScholarsArchive in the OSU Library (Water Resources community).

### c. The final defense for the doctoral degree

When the major professor is satisfied with the dissertation, the defense is scheduled and copies of the dissertation are distributed to the committee for review at least two weeks prior to the scheduled defense. The student schedules a meeting for the committee to come together to hear a defense of the paper and an examination to test the student's ability to integrate and interpret material learned in the program with emphasis on the work presented in the paper. In addition to scheduling this meeting with the committee members and the WRGP office, the defense must be formally scheduled with the Graduate School by submitting a form and the pre-text pages of the dissertation at least two weeks before the defense date. See the Graduate School website for instructions and to access the forms for scheduling the defense are available at the Graduate School website.

A successful defense is determined by a vote of the committee. Even at the defense, committee members may insist on further revisions of the dissertation before it is accepted. The Graduate School rules provide for a maximum of six weeks for revisions after the dissertation defense. If more than six weeks elapse, a re-examination of the student may be required.

The oral defense focuses on the dissertation, although questions pertaining to coursework are allowed. See Figure 1 for a typical defense agenda. Dissertation presentations are open to the public, although the examination is closed. Defenses typically take about 2-3 hours to complete. Leave plenty of time for discussion among your committee!

After a successful defense, a revised electronic (i.e., a pdf file) copy of the dissertation is submitted to OSU Library ScholarsArchive (in the Water Resources community). An Electronic Thesis and Dissertation Submission Approval form (ETD) must be signed by the major advisor and the Director of the Water Resources Graduate Program and submitted to the Graduate School. See the Graduate School website for more information about electronic submittal of the dissertation. The ETD form is submitted to the Graduate School along with a copy of the title page once the final thesis/dissertation is approved and uploaded to ScholarsArchive.

The Major Professor shall chair the program meeting and the examination portion of the defense. The Graduate Council Representative chairs the portion of the meetings that involve the evaluation of the student's performance on a dissertation-option oral defense.

Figure 1. Typical Agenda for Oral Defense

Call to order and introductions  
 Purpose and format of meeting  
 Public presentation by student (approximately 20-30 minutes)  
 Open question and answer (approximately 15 minutes)  
 Visitors asked to leave and committee break (if necessary)  
 Review and questioning of student by committee (this can include questions about both the research and the coursework)  
 Student excused  
 Committee discusses student's performance  
 Committee votes on performance of student  
 Student returns and results announced to student  
 Graduate School forms signed

d. Proposed timeline to degree completion

See II Schedule Options, above, for the recommended timeline for degree completion for all programs.

e. Committee membership

The makeup of the graduate committees is governed by the policies of the Graduate School and the Water Resources Graduate Program. The minimum committee sizes are as follows:

Degree	Major Prof	Minor/Other	Grad Rep	Total
M.S. Non-thesis	1	2	0	3
M.S.-Thesis	1	2	1	4
Ph.D	1	3	1	5

No committee is official until approved by program and Graduate School administrators. Administrative review will use the following guidelines:

All committee members must be Graduate Faculty. Adjunct members from other universities or organizations may also serve if approved by the WRGP and the Graduate School.

The committee must be appropriate to represent the proposed course of study and the relevant degree authority. All members of the committee EXCEPT the Graduate Council Representative (GCR) or the representative of the Minor (if applicable) must be members of the Water Resources Engineering graduate faculty.

The Major Professor assumes principal responsibility for directing research activities. When the Major Professor is on a courtesy faculty appointment, a member of the Water Resources regular faculty must serve as co-chair of the committee and must sign the approved dissertation.

If the student chooses an optional minor, the Minor Professor must be from outside the WRGP unless the minor area is entirely within Water Resources (WRPM or WRS). Graduate School rules require students to take at least fifteen credits for the minor and at least one course from the Minor Professor's department.

**Master's degree.** The student's committee for the M.S. degree consists of a minimum of three graduate faculty members: the major professor and two faculty members with some experience in the general area of the student's research area. In the thesis option, a Graduate Council Representative is chosen from a list provided by the Graduate School, and is a full voting member of the committee who attends all meetings, exams, and the final thesis defense. In the non-thesis option, there is no Graduate School representative on the committee.

**Doctoral degree.** The student's committee for the Doctoral degree consists of a minimum of five graduate faculty members: the major professor, three graduate faculty members with some experience in the general area of the student's research area, and a Graduate Council Representative (GCR). The GCR is chosen from a list provided by the Graduate School, and is a full voting member of the committee who attends all meetings, exams, and the final defense.

#### f. Role of the major professor

The major professor will advise and guide students in their graduate programs, be informed of student progress and difficulties, edit research proposals, and theses before they are given to committee members, encourage active participation in seminars, regional and national engineering and/or scientific meetings, and include students in other professional activities as appropriate.

#### i. Process for identifying or changing major professor

Students admitted to the Water Resources Engineering program as regular graduate students will have an advisor, also called the major professor, who has agreed to supervise the student's work at the time of admission. It is the responsibility of the student to seek acceptance by a member of the Water Resources faculty as the major professor. The decision is made upon mutual agreement between the student and the professor concerned and should be reported to the Water Resources Graduate Program Director to initiate the final stage of the admission process. If it becomes necessary for a student to change major professor, the student will work with the Associate Director of the WRE degree program and the Director of the Water Resources Graduate Program to identify a new major professor.

### g. Graduate Council Representative

A Graduate Council Representative (known as a GCR or Grad Rep) is required for all doctoral committees. Your GCR represents the OSU Graduate Council and ensures that all rules governing committee procedures are followed. Your GCR must be present at your formal exam(s), and will be responsible for some of the paperwork that the Graduate School requires. Per Graduate School guidelines, the GCR will also lead your committee's roundtable discussion following your final oral exam. Your GCR must be a graduate faculty member outside your major and minor area.

The GCR is a full voting member of your graduate committee. Many students select a GCRs who can also add disciplinary expertise. Select your GCR using the online GCR list generation tool

(<https://gradschool.oregonstate.edu/forms#gcr>) and be sure to allow ample time for this selection process. If you run into difficulty finding a GCR to serve on your committee, you can re-generate the list until you find someone who is willing to serve.

### h. Policy on non-OSU committee membership

Your graduate committee guides your course work and research and serves as your final examining committee. It is generally expected that all committee members or approved substitutes must be present for all formal meetings with the student (e.g. final oral exams). If you have a special case in which a committee member may need to participate remotely, you and your committee must assure that all the conditions for remote participation are met.

If the faculty member is not a member of the Graduate Faculty or is not approved for the role proposed, your major department/program will need to nominate the proposed member to act in those roles using the Nomination to Graduate Faculty form. Committee structure is evaluated when the Graduate School receives your program of study and when you schedule your formal examination(s).

Students in the Master's level program may be advised by a courtesy faculty member whose highest degree is an M.S./MA degree; however, a Doctoral level student may only be advised by a courtesy faculty member with either a Ph.Ph.DD, J.D., or Ed.D.

## X. Program/department specific funding opportunities (GTA, GRA, fellowships, awards, travel grants, etc.)

One or two program-specific GTA opportunities at the 0.4 FTE level are sometimes available from the WRGP. Usually, these are provided to second-year students who entered with fellowships in their first year, as support for the years following the fellowship year. Check with the Program Director to see if any program-specific GTA opportunities are available.

University regulations require all students with an assistantship to register for a minimum of 12 hours each term while employed as a Teaching Assistant (TA) or

Research Assistant (RA). Graduate assistants may register for a maximum of 16 hours, but are advised to confer with their major professors or program director when registering for more than 12 credits to avoid potential overload. Students on an assistantship can maintain their full-time status, and avoid overloading their schedules by signing up for Thesis hours with their major professor to “top up” their load to the 12-credit minimum. Doctoral students can include a maximum of 45 credits of thesis hours on their graduate program, but may enroll for up to 16 thesis credits per term.

**Important note regarding summer GTA/GRA positions:** during the summer, GA’s are normally only required to sign up for three credits. However, this will not cover taxes, as three units is not considered full time. Taking three additional credits is one option to cover this cost. An hourly appointment might be a preferred option, instead. Talk to your major advisor, Assistant Director, and financial advisor about the best pathway forward for your personal situation.

## XI. Scholarships and Fellowships

In addition to scholarships and fellowships offered through the University’s ScholarDollar program, the WRGP awards four named fellowships each academic year, although dollar amounts may vary depending on donations. These are the Bill and Jane Jackson Scholarship (funded by OSU alumni Bill and Jane Jackson), the Williamson Water Prize, the Faculty Excellence Scholarship (funded by donations from the faculty to students exhibiting excellence in scholarship) and the Alumni scholarship (funded by donations from alumni to reward excellence in service (especially to the Hydrophiles officers) along with excellence in scholarship.

The WRGP also nominates eligible students for fellowship and scholarship opportunities available through the Graduate School. The major professor initially nominates one of the student’s for fellowship and scholarship awards. The Scholarship Committee, based on how well the student fits the criteria established for the scholarship, selects nominees.

## XII. Required program/degree milestones

See the schedule on Page 3 for degree program milestones and benchmarks.

## XIII. Deadlines related to Program of Study, Exam Paperwork, etc.

Please following the following [link](#) for the minimum deadlines as defined by the Graduate School. Programs can require a more rigorous set of deadlines. Students are expected to check with their program and the Graduate School regarding specific deadlines unique to the term and academic year they plan to complete their degree requirements.

## XIV. Process for measuring and communicating a review of satisfactory progress

### **Definition of satisfactory progress:**

Satisfactory progress toward completing a graduate degree in the WRGP requires participating in the following:

- An annual assessment survey showing adequate progress in coursework;
- timely compliance with all development of dissertation or writing project as evaluated by major professor and the rest of the student's graduate committee;
- Graduate School and degree program requirements\*\* for committee formation, committee meetings, project proposal, submission of forms and information, participation in seminars; and
- Other activities expected of a student, scholar and member of the WRGP.

Students must also:

- Maintain a GPA of 3.00 or better for all courses taken as a graduate student;
- Successfully pass relevant exams (as outlined by the Graduate School); and
- Maintain communication with the advisor and committee on the progress of the student's thesis or dissertation research.

\*Students who are restricted from full course loads may negotiate a longer time frame in consultation with the program director and their major professor.

Mechanisms of accountability begin with the annual progress assessment survey, completion, and submission of annual progress form. Students are accountable for completing the annual assessment of progress survey and a self-assessment narrative. The advisor is responsible for meeting with the student to go over the survey and narrative, and for completion of the form submitted to the WRGP office. The Program Director is responsible for reading through the surveys, noting where there is concern that the student is not making satisfactory progress, and arranging to meet with those students.

If the student and advisor have completed an assessment of student process in the current year as part of the policies and procedures for the department of the major advisor, that assessment can be submitted to the program in lieu of the WRGP Assessment. It is the responsibility of the student and major professor in this case to ensure that the alternative assessment is submitted to the Director and Administrative Assistant.

See Appendix H for the complete description of the Assessment of Academic Progress.

## XV. Registration

The OSU Schedule of Classes is available online and contains academic regulations and registration procedures that apply to all students in the university, as well as the final

examination week schedule. The online [catalog](#) is the source for up-to-date changes for the current and immediately upcoming term. It is your responsibility to register for the appropriate number of credits that may be required for any funding eligibility and/or to meet the requirements of the continuous enrollment policy. Problems arising from registration procedures, such as late registration, adding or withdrawing from courses after deadlines, or late changes from letter or S/U grading are resolved through the [petition for late change in registration](#) filed with the Graduate School. A late registration fee may be applied.

Students are responsible for staying current on registration requirements that may supersede the Graduate School requirements (i.e., international, financial aid, veteran's).

### XVI. Minimum Course Loads

The Registrar and the Graduate School establish course load requirements for graduate students. You are considered a “full-time” graduate student if you are registered for 9–16 credits in a given academic term. You are considered a “part-time” graduate student if you have less than nine credits. If you are a degree-seeking student, you must be registered for a minimum of three graduate credits in any term you wish to be enrolled and access university resources, including the term of the final defense.

Students are responsible for staying current on course load requirements that may supersede the Graduate School requirements (i.e., international, financial aid, veteran's).

### XVII. Continuous Graduate Enrollment

All graduate students enrolled in a degree program must register continuously for a minimum of three graduate credits each term (fall, winter, and spring terms) until all degree requirements are met, regardless of student's location. Students on approved leave are exempt from the continuous enrollment policy for the term(s) they are on leave.

Graduate students who use facilities or faculty/staff time during summer session are required to register for a minimum of 3 credits during the summer session. Students defending in the summer term are required to register for a minimum of 3 graduate credits.

Students may appeal the provisions of the continuous graduate enrollment policy if extraordinary circumstances arise by submitting a detailed request in writing to the Dean of the Graduate School. Scheduling difficulties related to the preliminary oral exam or the final oral exam are not considered an extraordinary circumstance. Graduate assistantship eligibility requires enrollment levels that supersede those contained in this continuous enrollment policy. Various agencies and offices maintain their own registration requirements that also may exceed those specified by this



continuous enrollment policy (e.g., those of the Veterans Administration, Immigration and Naturalization Service for international students, and those required for federal financial aid programs.) Therefore, it is the student's responsibility to register for the appropriate number of credits that may be required for funding eligibility and/or compliance as outlined by specific agency regulations under which they are governed. NOTE: Students who are pursuing a certificate only are not subject to the continuous enrollment policy.

### XVIII. Leave of Absence

Leave of Absence status is available to eligible students who need to suspend their program of study for good cause. The time the student spends on approved leave will be included in any time limits prescribed by the university relevant to degree completion. Students on approved leave may not a) use any university facilities, b) make demands upon faculty time, c) receive a fellowship or financial aid, or d) take course work of any kind at Oregon State University. [Leave of Absence/Intent to Resume Graduate Study Forms](#) must be received by the Graduate School at least 15 working days prior to the first day of the term involved. Family Medical Leave (FML) may be granted at any point during a term. FML inquiries should be directed to [fmla@oregonstate.edu](mailto:fmla@oregonstate.edu). NOTE: Students who are pursuing a certificate only are not subject to the Leave of Absence Policy.

### XIX. Unauthorized Break in Registration

Degree seeking graduate students who take an unauthorized break in registration relinquish graduate standing at the University. To have graduate standing reinstated after an unauthorized break, students are required to reapply to their program (complete the online graduate admission application, pay the application fee, and may be required to register for three graduate credits for each term of unauthorized break in registration). It is advisable that students in this situation state that they are applying for readmission in the application packet. A reapplication does not ensure admittance to the program.

### XX. Grievance Procedures

All students desiring to appeal matters relating to their graduate degree should follow the Grievance Procedures for Graduate Students. These procedures are available at <https://gradschool.oregonstate.edu/current-students/grievance-procedures>. Graduate assistants, whose terms and conditions of employment are prescribed by the [collective bargaining agreement](#) between OSU and the Coalition of Graduate Employees, American Federation of Teachers Local 6069, should also refer to that document and seek guidance from OSU's Office of Human Resources.

#### a. Process for filing [program specific](#) grievances and petitions

The Water Resources Graduate Program requires that professional relationships be maintained between faculty and students. When situations arise with an instructor or

professor that cause concern, the student is encouraged to discuss the problem with that instructor or professor first. If the student is not satisfied with the response from the instructor or professor, the student is encouraged to make written appeal through the following chain of academic administrators until a conclusion is reached:

1. Instructor;
2. Associate Director – WRE;
3. WRGP Director;
4. Associate Dean of the Graduate School;
5. Dean of the Graduate School; and lastly,
6. The Provost.

A student may request an exception to policy by petitioning the WRE Curriculum Committee in writing, through his or her major professor or the WRGP Program Director. A copy of the request must be filed with the program office.

## XXI. Grade Requirements

A grade-point average of 3.00 is required: 1) for all courses taken as a degree-seeking graduate student, and 2) for courses included in the graduate degree or graduate certificate program of study. Grades below C (2.00) cannot be used on a graduate program of study. A grade-point average of 3.00 is required before the final oral or written exam may be undertaken. Enforced graduate-level prerequisite courses must be completed with a minimum grade of C. Programs may have more stringent grade requirements than those prescribed by the Graduate School.

In the WRE degree program, if a student earns more than any grade below “B” in any course included on the program of study, the student’s academic performance will be examined by the major professor and the WRE curriculum committee to determine if the student may continue in the program or be dropped for academic deficiency. Two consecutive quarters of less than 3.0 GPA may result in immediate termination from the program, regardless of cumulative GPA.

## XXII. Program of Study

A Program of Study is list of proposed courses you will take – must be filed by all graduate students with the Graduate School. The M.S. Program must consist of a minimum of 50% graduate “stand-alone” courses (not 400/500 “slash courses”). The Program of Study form is available on the Graduate School website.

Program meetings and defenses may be held during any period when school is in session. This excludes the periods between regularly scheduled quarters and during official vacation periods. Students should be aware that most faculty are on nine-month appointments and may not be available during the three-month summer period.

It is the responsibility of each student to arrange the meeting and defense times and places, notify the Graduate School of scheduled defenses, and remind each committee

member of the scheduled meeting or defense. At the time you schedule your dissertation defense with the Graduate Schools, you should also apply for graduation if you have not already done so. Check the Graduate School web site for graduation deadlines.

Master's degree students must file a study program with the Graduate School before the end of their second term in the program.

The program of study is worked out under the guidance of the student's committee and is signed by members of the committee and the Director of the Water Resources program before filing with the Graduate School. Each candidate's graduate program should include a substantial amount of work with at least four faculty members offering graduate instruction (e.g., teaching stand-alone courses).

Changes in the program may be made by submitting a new, revised Program of Study form to the Graduate School. If changes are needed, it is wise to wait and file one revised form – but do so at least 15 weeks before the final examination for the degree - so repeated filings are not necessary.

### XXIII. Transfer of Credits

Only graded, non-seminar graduate courses taken after the awarding of a Bachelor's degree from an accredited institution will be considered for transfer credit. Transfer course must carry a grade of 'B' or better. Courses required to fulfill a previous degree requirement will not be awarded transfer credit, except in cases of an established concurrent degree program. No transfer course may serve as a replacement for a core course. Transfer credit hours are limited to 15 quarter credit hours and subject to the approval of the student's committee and the Director of the Water Resources Graduate Program.

### XXIV. Incomplete Grades

An "I" (incomplete) grade is granted only at the discretion of the instructor. The [incomplete](#) that is filed by the instructor at the end of the term must include an alternate/default grade to which the incomplete grade defaults at the end of the specified time period. The time allocated to complete the required tasks for the course may be extended by petition to the University Academic Requirements Committee. You can obtain the form from the Registrar's Office. It is the student's responsibility to see that "I" grades are removed within the allotted time.

### XXV. Student Conduct and Community Standards

Graduate students enrolled at Oregon State University are expected to conform to basic regulations and policies developed to govern the behavior of students as members of the university community. The Office of Student Conduct and Community Standards (SCCS) is the central coordinating office for student conduct-related matters at Oregon State University.

Choosing to join the Oregon State University community obligates each member to a code of responsible behavior, which is outlined in the [Student Conduct Code](#). The assumption upon which this Code is based is that all persons must treat one another with dignity and respect in order for scholarship to thrive.

Violations of the regulations subject a student to appropriate disciplinary action.

#### a. Use of Human Subjects

Federal and university policies required that all research conducted by faculty, staff, and students using human subjects must be reviewed and approved by the institutional Review Board before initiating any portion of the project. In addition, the IRB now requires that all researchers using human subjects complete an on-line ethics course. Students should work with their major professors to submit their research project to the IRB for approval. See: <http://research.oregonstate.edu/irb> for information. The IRB office has drop in hours and will help with the process.

#### b. Academic Dishonesty

Academic Dishonesty is defined as an act of deception in which a student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the Student's own efforts or the efforts of another. It includes:

CHEATING — use or attempted use of unauthorized materials, information or study aids, or an act of deceit by which a Student attempts to misrepresent mastery of academic effort or information. This includes but is not limited to unauthorized copying or collaboration on a test or assignment, using prohibited materials and texts, any misuse of an electronic device, or using any deceptive means to gain academic credit.

- FABRICATION — falsification or invention of any information including but not limited to falsifying research, inventing or exaggerating data, or listing incorrect or fictitious references.
- ASSISTING — helping another commit an act of academic dishonesty. This includes but is not limited to paying or bribing someone to acquire a test or assignment, changing someone's grades or academic records, taking a test/doing an assignment for someone else by any means, including misuse of an electronic device. It is a violation of Oregon state law to create and offer to sell part or all of an educational assignment to another person (ORS 165.114).
- TAMPERING — altering or interfering with evaluation instruments or documents
- PLAGIARISM — representing the words or ideas of another person or presenting someone else's words, ideas, artistry or data as one's own, or using one's own previously submitted work. Plagiarism includes but is not limited to copying another person's work (including unpublished material) without appropriate referencing, presenting someone else's opinions and theories as one's own, or working jointly on a project and then submitting it as one's own.

Academic Dishonesty cases are handled initially by the academic units, following the process outlined in the University's Academic Dishonesty Report Form, and will also be referred to SCCS for action under these rules.

## XXVI. Office of Equal Opportunity and Access

The OSU Office of Equal Opportunity and Access defines sexual harassment as the following:

- Unwelcome\* sexual advances, requests for sexual favors and other verbal or physical conduct of a sexual nature when:
- Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or education;
- Submission to or reject of such conduct by an individual is used as the basis for employment of education –related decisions affecting such an individual; or
- Such conduct is sufficiently severe or pervasive that it has the effect, intended or unintended, of unreasonably interfering with an individual's work or academic performance because it has created an intimidating, hostile, or offensive environment and would have such an effect on a reasonable person of that individual's status.

*\*Employee conduct directed towards a student – whether unwelcome or welcome – can constitute sexual harassment under OAR.*

There are two confidential resources to discuss reporting options: Center Against Rape and Domestic Violence (CARDV) provides 24/7 confidential crisis response at 541-754-0110 or 800-927-0197, and OSU Sexual Assault Support Services is available weekdays at 541-737-7604.

## XXVII. Student Records

Both federal and state laws permit Oregon State University staff to release directory information (e.g. name, address, degree program, birth date) to the general public without your consent. You can prohibit the release of directory information to the public by signing the Confidentiality Restriction form available from the Registrar's Office. It will not prohibit the release of directory information to entities of Oregon State University that have a "need to know" to accomplish their required tasks. It further will not prohibit Oregon State University departments from including your name on mailing lists for distribution of materials that are essential to your enrollment at Oregon State University.



## XXVIII. Application for degree and scheduling the final examination

Students intending to graduate must schedule their final examination, file an Application for Degree and pay a graduation fee before the deadline to do so. Deadline dates for filing vary from term to term; students should go the Graduate School website to determine deadlines.

Filing the application for the degree and scheduling the final examination will generate a final “TO DO” list from the Graduate School, which describes all program deficiencies. An early application allows the student ample time to correct any problems identified by the Graduate School. See the Graduate School website for details.

## XXIX. Appendix A: Checklist for Water Resources Engineering Degree

To be signed by WRE representatives of student's committee and submitted with the student's program of study. Students must complete these to receive a WRE degree.

Student Name	Degree (circle one)	
	M.S.	Ph.D
<b>Baccalaureate Requirements</b>		
One year, Calculus Equiv: MTH 251, 252, (253 or 254)		
Applied Differential Equations Equiv: Math 256		
One year, Physics		
One year, Chemistry		
One year, upper division in Science		
<b>Program Requirements</b>		
<b>Water Resources Core Courses</b>		
WRX 507/607: Water Resources Seminar M.S.: 2 Credits total Ph.D: 3 Credits total		
WRX 505 Water Resources Journal Club Journal club must be taken in the <b>same term</b> as one of the seminars		
WRP 524: Socio-technical Aspects of Water Resources		
BEE 512: Physical Hydrology		
BEE 529 BioSystems Modeling or Equivalent Hydraulics or Watershed Processes, various		
Additional Water Science Courses/Credits (approved by committee) M.S.: 6 credits Ph.D: 9 credits		
AIH-required water coursework <sup>4</sup> (37 credits)		
<b>Thesis or Research</b>		
M.S. Thesis or Research (6 - 12) Dissertation (36-45)		
<b>Total credits</b>		
M.S.: ≥45 credits Ph.D: ≥108 credits		

<sup>4</sup> **AIH educational criteria:** 15 cr. in Category I of the defined as courses in which 90% of the material is hydrology, hydrogeology, or water quality; 13 cr. in Category II of the AIH educational criteria, defined as courses in which 10% of the material is hydrology, hydrogeology, or water quality; and, 9 cr. in Category III of the AIH educational criteria, generally other science, water, engineering, or natural resources policy coursework.



Water Resources Graduate Program  
Oregon State University  
124 SW 26<sup>th</sup> Street | 116 Gilmore Hall  
Corvallis, Oregon 97331

Signed: Student	Date:	
Signed: Major Advisor	Date:	



## XXX. Appendix B: Curriculum for Water Resources Engineering

### Core Courses - Required (6 MS; 9 PhD)

- WRP 524 Socio-technical Aspects of Water (3 cr.)
- WRS, WRP, or WRE 507 Water Resources Seminar (1 cr., take 2)
- WRS, WRP, or WRE 507 *and* 505 Seminar and Journal Club (1 + 1 cr.)  
(Doctoral students must take a total of 3 seminars; one seminar must be taken concurrently with the journal club)

### Water Resources Science - Required Courses

- BEE 512 Physical Hydrology (3 credit)
- BEE 529 Biosystems modeling or equivalent (3 credit - AIH Category 2)

A course in either groundwater hydraulics or open channel hydraulics must be included in the additional 21 cr. of water science coursework are also required. In consultation with the committee, students select from courses offered across campus.

A list of water-related courses that can be used to meet course requirements for both the major and minor field of study can be found [here](#).

## XXXI.

## Appendix D: Proposal Structure

Before conducting your dissertation research, you must make a proposal to your committee about what you plan to do. The proposal lays out the problem, tells the reader what is already known (and not known) about the problem, and describes in careful detail what you are going to do to answer the questions.

### Dissertation Proposal Structure

A dissertation proposal can include a number of sections, described below. These are just examples. Of course, the content and subheads under each section will vary depending on the problem you are researching, your theoretical framework and the methodology you envision.

- I. Introduction. This should consist of a brief summary of the problem you are proposing to investigate, what questions or hypotheses you intend to address, and how you envision doing it.
- II. Review of Literature. Here you review relevant literature that will enable you to make a case for the significance of your research. This is an interdisciplinary field. It is likely you will review more than one area of literature. Following this review, you should summarize the rationale for your research questions or hypotheses drawn from all the areas of literature you have reviewed. Finally, you should clearly state your main research questions or hypotheses.
- III. Methodology. Here you describe your plans for collecting data as specifically as you can. Of course, the considerations you discuss here will vary depending on the nature of your research, e.g., whether quantitative or qualitative. The following are considerations you may need to discuss in a quantitative thesis: unit of analysis; population; sampling procedures; research instruments (questionnaire, coding categories); and reliability and validity of the methodology you plan to use. Some discussion of the limitations of your chosen approaches may be appropriate.

## XXXII. Appendix E: Project Proposal Structure

The organization of a project proposal typically parallels that of a dissertation proposal, including the following:

- I. Introduction. A brief summary of what problem, topic(s) or issues you intend to address, and how you envision doing it.
- II. Background research. Report any research that helps make a case for the significance of your project and provides the professional context for the paper. At least two types of background research are relevant here: research into the problem and appropriate methodologies to address the problem, and research to demonstrate the project's unique contribution to the practice of water resources engineering.
- III. Methodology or Procedures. Describe the procedural decisions and plans that will enable you to carry out the project. Obviously, different types of projects will require very different kinds of procedures. Creative projects will involve completely different types of procedures and methodologies, depending on the project.

## XXXIII. Appendix F: Graduate School

### What is the **Graduate School**?

The Graduate School at OSU assures quality and consistent interpretation of Graduate Council policies related to graduate education across all programs. The [OSU Catalog](#) is the official source for information regarding OSU graduate education policy and procedures. It is the student's responsibility to refer to the catalog for this information. The Graduate School supports students throughout the academic [lifecycle](#), from admissions to degree completion.

The Graduate Schools offers an array of [professional development opportunities](#) specific to the success of graduate students. Topics covered include: research and ethics, teaching and facilitation, writing and communication, leadership and management, career skills, grad life and wellness. Please visit the Graduate School links to browse our student success offerings.

### Frequently Used Resources:

- Graduate Program forms and all other necessary forms are available on the web at <http://gradschool.oregonstate.edu/forms>
- The OSU Graduate School Guide to Success, a step-by-step guide to getting through your graduate program can be found at <https://gradschool.oregonstate.edu/graduate-student-success>
- OSU Graduate diploma and commencement deadlines: <https://gradschool.oregonstate.edu/progress/deadlines>
- Information about graduate degrees can be found at <https://gradschool.oregonstate.edu/>
- The Graduate School is available to answer any questions on degree requirements. Call 541-737-4881, stop by the Graduate School on the 3<sup>rd</sup> floor of Kerr Administration Building, or e-mail at [graduate.school@oregonstate.edu](mailto:graduate.school@oregonstate.edu)
- The OSU Center for Writing and Learning: writing assistants are available to help with brainstorming, organization, grammar and usage, and all aspects of writing. There is also an online writing lab for assessment of writing problems (24-48 hour turnaround.) You can call 541-737-5640, visit at Waldo 123, or check the website at <https://cwl.oregonstate.edu>.

## XXXIV. Appendix G. Academic and Support Resources

OSU offers a wide array of academic and support resources designed to meet graduate student needs. Some of the more commonly used resources are included below. For a more complete list, please visit the Graduate School's [Student Resources web page](#). Note that some services are campus-specific. See also [OSU Cascades Campus Life](#) and [Ecampus Student Services](#) for services specifically provided to graduate students pursuing degrees or certificates via those specific venues.

- [Campus Safety](#) – Emergency phone numbers, university alerts
- [Career Development Center](#) – Resume/CV, networking, job search strategies
- [Childcare and Family Resources](#) – University child care centers, child care assistance
- [Counseling and Psychological Services \(CAPS\)](#) – Individual and group counseling
- [Cultural Resource Centers](#) – Cultural based community centers, social support
- [Disability Access Services \(DAS\)](#) – Academic accommodations
- [Equal Opportunity and Access \(EOA\)](#) – Employment accommodations, discrimination or bias response
- [Financing your education](#) – Funding options and information, graduate awards
- [Graduate Student Commons \(GSC\)](#) – Lounge, study space, printing, reservable meeting rooms
- [Graduate Writing Center](#) – Writing workshops, groups, and 1:1 writing coaching
- [Health Insurance](#) – Plans for graduate students and graduate employees
- [Human Services Resource Center \(HSRC\)](#) – Food pantry, housing and food stamp assistance
- [Institutional Review Board \(IRB\)](#) – Review for human subjects research
- [Office of International Services \(OIS\)](#) – Visa and immigration advising
- [Ombudsman Conflict Management Services](#) – Informal, impartial conflict resolution advising
- [Recreational Sports](#) – Dixon Recreation Center, intramural sports
- [Statistics Consulting Service](#) – Graduate student research statistical advising
- [Student Health Services \(SHS\)](#) – Clinic and pharmacy
- [Student Multimedia Services \(SMS\)](#) – Poster printing, equipment and laptop loans
- [Beaver Bus](#)
- [Biking](#)
- [Transportation and Parking Services \(TAPS\)](#) – Parking permits, maps
- [Valley Library](#) – Reference and research assistance, study spaces, research tools

## XXXV. Appendix H. Graduate Learning Outcomes and Their Assessment

Through participation in and successful completion of the Ph.D. in the Water Resources Engineering (WRE) degree program, students will gain an advanced understanding of water resources engineering, and be able to perform research at the leading edge of the hydrologic engineering field. Students will be sufficiently trained through disciplinary coursework and research experience to bring hydrologic engineering expertise to a team, and will have the breadth in water resources and environmental issues to be able to communicate with professionals from the wide range of specialties involved in water resources management and research.

**Outcome 1: SCHOLARSHIP:** All program graduates will have the ability to conduct original research that extends knowledge at the forefront of the fields of water resources engineering. This will be demonstrated through mastery and application of critical thinking in the design and conduct of the research, and application of standard and innovative theory and methods in both coursework and an individual dissertation research project.

**Outcome 2: KNOWLEDGE:** All graduates of the Water Resources Graduate Program will be able to demonstrate in-depth disciplinary knowledge and capacity to apply that knowledge to water resource issues at multiple scales, skill in integrating water resources concepts across multiple disciplines, original and innovative contributions to the understanding of water resources systems, and the ability to employ technical knowledge and leadership skills to water resources research. Learning outcomes specific to Water Resources Engineering Students include the following:

- Students completing the WRE program will demonstrate the ability to carry out original and useful research in some area of water resource engineering.
- Ph.D. students will successfully complete a qualifying exam to become doctoral candidates
- Ph.D. students are expected to be able to make original contributions to the understanding of engineered systems in the water resources.
- Students completing the WRE program will meet the coursework requirements to gain Professional Hydrologist certification through the American Institute of Hydrology (AIH).

These outcomes will be accomplished through successful completion of the coursework required for the degree and a research project resulting in a dissertation. Students completing the WRE program will meet the coursework requirements to gain Professional



Hydrologist certification through the American Institute of Hydrology (AIH). These outcomes will be accomplished through successful completion of the coursework required for the degree and a dissertation research project.

**Outcome 3: COMMUNICATION & SERVICE:** All graduates of the WRE degree program will have the ability to communicate professionally and with the public about water resources and water resources research. They will gain skills and experience in communicating in both formal and informal venues with learners, practitioners, and community members. This will be demonstrated through completion of the core course WRP 524 Sociotechnical Aspects of Water Resources, in which students are required to do both group and individual presentations and prepare written briefs, and through presentations at events such as the PNW Water Research Symposium and other professional conferences.

**Outcome 4: ETHICS AND DIVERSITY:** All graduates of the WRE degree program will have a commitment to diversity and high ethical standards in scholarship, teaching, and service. This will occur through participation and training in research methods courses, the core course WRP 524, and seminars, workshops, or other activities focused on diversity and ethics.

The committee, using the form on the following page (Attachment 1), assesses achievement of these learning outcomes at the final defense.



## XXXVI. Appendix I: Scoring Guide (Rubric) for Graduate Learning Outcome Assessment

Ph.D. DEFENSE EXAM\* in Water Resources Engineering

Date: \_\_\_\_\_

Candidate Name: \_\_\_\_\_

Title of Dissertation: \_\_\_\_\_

Evaluation/Guidance	Does not meet Expectations	Meets Expectations	Exceeds Expectations
Problem Definition: Has stated the research/project problem clearly, providing motivation for undertaking the research			
Literature and Previous Work: Demonstrated sound knowledge of literature in the area, and of prior work on the specific research/project problem			
Impact of Research/Project: Demonstrated the potential value of solution to the research/project problem in advancing knowledge within the area of study			
Solution Approach: Has applied sound state-of-the-art research/project methods/tools to solve the defined problem and has described the methods/tools effectively			
Results: Analyzed and interpreted research/project results/data effectively			
Quality of Written Communication: Communicates research/project results clearly and professionally in written form			
Quality of Oral Communication: Communicates research/project results clearly and professionally in oral form			
Critical Thinking: Has demonstrated capability for independent research/project in the area of study and expertise in the area			
Broader Impact: Demonstrated awareness of broader implications of the concluded research/project. Broader implications may include social, economic, technical, ethical, business, etc. aspects.			
Publications: Journal, conference, or some other scholarly publications have resulted (or are anticipated) from this research/project			





Overall Assessment: The assessment of the overall performance of the candidate based on the evidence provided in items 1 – 10 above.

CRITERIA	PERFORMANCE RATINGS for DISSERTATION EXAM	
	<i>Does NOT PASS Exam</i>	<i>PASSES Exam</i>
OVERALL, My rating of the Dissertation indicates that it:	Does not meet expectations	Meets expectations

Examining Committee Members:

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Printed Name	Signature	Date

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Printed Name	Signature	Date

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Printed Name	Signature	Date

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Printed Name	Signature	Date

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Printed Name	Signature	Date

*Examiner: Please use the remainder and/or reverse side of this form for written commentary as needed.*

## XXXVII. Appendix J. Assessment of Student Progress

This document has been prepared to provide students and faculty in the Water Resources Graduate Program (WRGP) with guidelines for assessing whether students are making satisfactory progress towards the degree and to enhance communication that will foster such timely progress<sup>5, 6</sup>.

**Definition of satisfactory progress:** Satisfactory progress toward completing a graduate degree in the WRGP requires:

- Participating in an annual assessment survey showing adequate progress in coursework;
- timely compliance with all development of dissertation or writing project as evaluated by major professor and the rest of the student's graduate committee
- Graduate School and degree program requirements\*\* for committee formation, committee meetings, project proposal, submission of forms and information, participation in seminars and other activities expected of a student, scholar and member of the WRGP.
- Maintaining a GPA of 3.00 or better for all courses taken as a graduate student,
- Successfully passing relevant exams (as outlined by the Graduate School),
- Maintaining communication with the advisor and committee on the progress of the student's thesis or dissertation research.

\*Students who are restricted from full course loads may negotiate a longer time frame in consultation with the program director and their major professor.

### **Section 1.** What informs satisfactory progress?

See Graduate Handbook for description of the schedule of progress for students in each degree program for the schedule of academic progress. In addition, the Graduate School website (see footnote) describes minimum academic progress expected for all graduate students.

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<sup>5</sup> We wish to express our thanks to the OSU College of Forestry, Department of Forest Ecosystems and Society whose progress assessment documents informed our plan, and from which we liberally borrowed text.

<sup>6</sup> The *minimum criteria* for satisfactory progress as codified by Graduate Council is: Advanced-degree students (regularly, conditionally, and provisionally admitted) are expected to make satisfactory progress toward a specific academic degree. This includes maintaining a GPA of 3.00 or better for all courses taken as a graduate student and for courses included in the graduate program, meeting departmental or program requirements, and participating in a creative activity such as a thesis.  
(<http://catalog.oregonstate.edu/ChapterDetail.aspx?key=38#Section1815>)

**Section 2.** What are the accountability mechanisms?

Mechanisms of accountability begin with the annual progress assessment survey and completion and submission of annual progress form. Students are accountable for completing the annual assessment of progress survey and a self-assessment narrative. The advisor is responsible for meeting with the student to go over the survey and narrative, and for completion of the form submitted to the WRGP office. The Program Director is responsible for reading through the surveys, noting where there is concern that the student is not making satisfactory progress, and arranging to meet with those students.

**Section 3.** What are the ramifications for not making satisfactory progress?

Students who are not making academic progress and their advisors, will be required to meet with the Program Director and/or Associate Director to discuss reasons for lack of progress and to make a plan for achieving adequate progress going forward. Students who are not making adequate progress and have been informed that they are not making adequate progress will have a specified time frame established at their meeting with the Director and benchmarks that must be met in order to be retained in the program. Students who continue to fail in making adequate progress, and do not meet these benchmarks can lose their eligibility for continued financial support, scholarships or assistantships.

**Section 4.** How is the information communicated to students?

The Plan for Assessment of Academic Progress will be provided in the Handbook for all students. Following the review of academic progress, those students who are not meeting expectations for academic progress will be notified via email and requested to schedule a meeting with the Director and Associate Director of the relevant degree program.

**Section 5.** Description of the Assessment process (also in Graduate Handbooks)

a. Each spring term, every graduate student in the Water Resources Graduate Program will fill out the survey of student progress, noting achievement of specific benchmarks, and attach a written self- assessment narrative, described below.

**Self-Assessment Narrative:** The written self-assessment should summarize activities undertaken by the student since the last review and should address:

- Coursework taken and grades received;
- Field work, data collection/analysis;
- Progress on writing dissertation;
- Participation in Hydrophiles organization and/ or professional development opportunities;
- Service to the Department and the University;
- the students communication methods and schedule with adviser; and
- Any other relevant information, including any impediments to progress.



The student will then meet with the major professor to review the student's self-assessment narrative, progress, and accomplishments over the past year. Participation from other graduate committee members may be requested by the student or the major professor but is not required.

The major professor reviews the student's materials and then fills out and signs the Assessment of Graduate Student Academic Progress form. The major professor (or any committee member) will include specific written comments – they may choose to write their own narrative to document their assessment of the student's progress in writing for inclusion in the assessment, but this is optional. Written comments should document expectations for the coming year. The student will then sign the form and is responsible for submitting the narrative and the signed and completed Assessment of Graduate Student Academic Progress form to the WRGP office for inclusion in the student's permanent record by June 30th each year.

If the student's progress is unsatisfactory, the student will work with the major professor to develop a Graduate Education Performance Plan that contains measurable milestones for assessing student academic progress over the course of the year. The plan will also be reviewed and signed by the graduate program director and filed in the student's permanent record.



XXXVIII. Appendix K: OSU Water Resources Graduate Program -
Assessment of Student Academic Progress

Student Name \_\_\_\_\_
Date of Assessment: \_\_\_\_\_

Please carefully review the WRGP Plan for Assessment of Satisfactory Academic
Progress and complete in accordance with the WRGP Plan. This completed form
must be attached to the self-assessment narrative and submitted to the WRGP
Office before June 30th each year.

- 1. Completion of Milestones (Students- please complete this section):
a. Enter term of completion (e.g. 'Fall '26') next to milestones achieved for your
current degree. Committee formed (Enter names below, beginning with your
advisor or major professor):

Major Professor \_\_\_\_\_
Committee member \_\_\_\_\_
Committee member \_\_\_\_\_
Committee member \_\_\_\_\_

Graduate Committee Rep. \_\_\_\_\_

- b. Conducted program of study meeting on (date): \_\_\_\_\_
c. Submitted program of study to the Graduate School (date) \_\_\_\_\_
d. Submitted research proposal to WRGP Office (date): \_\_\_\_\_
e. Preliminary qualifying exams scheduled for / passed on (date): \_\_\_\_\_
f. Final exam scheduled for: \_\_\_\_\_

3. Signatures of major professor (s) and student:

I have reviewed my student's milestones (above) and self-assessment narrative, have completed
the 'Major Professor Assessment of Progress' (page 2 of this document), and confirmed my
student understands my responses.

Major Professor(s) Signature(s) \_\_\_\_\_ Date \_\_\_\_\_

I have reviewed the above milestones with my advisor and understand my advisor's responses
and expectations

Student Signature \_\_\_\_\_ Date \_\_\_\_\_



Water Resources Graduate Program  
Oregon State University  
124 SW 26<sup>th</sup> Street | 116 Gilmore Hall  
Corvallis, Oregon 97331



## Major Professor Assessment of Progress:

Yes (Y)	No (N)	Major professor(s): Please discuss your responses with your student.
		Student is making satisfactory progress in completing his or her coursework
		Student is making satisfactory progress in research, including planning and conducting data collection and analysis
		Student is making satisfactory progress in completing the dissertation
		Student has participated in professional development opportunities, presenting research at professional meetings, participating in Hydrophiles student club and/ or other service activities
		Student is communicating effectively and courteously with advisor, committee members, and other faculty members.
		Overall, student is on track to graduate and is building a strong scholarly resume

Comments:



## XXXIX. Appendix L: Water Resources Graduate Program Graduate Education Performance Plan

This form is intended to monitor a student's performance towards degree completion resulting from an unsatisfactory review at an annual assessment. This form should outline mutually agreed-upon (between student and major professor) benchmarks of performance.

Student \_\_\_\_\_

Major Professor \_\_\_\_\_

Plan (Identify deficiencies and outline plan to remedy them):

Benchmarks (Criteria used to evaluate progress):

Signatures:

Student \_\_\_\_\_

Date \_\_\_\_\_

Advisor \_\_\_\_\_

Date \_\_\_\_\_