Water Resources Science

Master of Science Degree

Graduate Information Handbook

Water Resources Graduate Program
Oregon State University
Corvallis, Oregon 97331

Visit the Water Resources Graduate Program web site at http://oregonstate.edu/gradwater/ and the OSU Graduate School web site, http://gradschool.oregonstate.edu/, for current program and university information

1 Thanks to the Geography Program in the Geosciences Department for the Handbook template and to the Public Policy Program for many details including what makes a good research paper. Updated 04-10-2017
Table of Contents

Schedule for M.S. Students. ........................................ 3

I. Introduction ....................................................... 4

II. Graduate Program Requirements and Responsibilities . . 5

Appendix A: Checklist for WRS Program ....................... 13
Appendix B: WRS Curriculum ..................................... 14
Appendix C: Proposal Structure ................................. 15
Appendix D: Graduate School Forms, Sources of Information . 16
Appendix E: Graduate Learning Outcomes and Assessment . . 17
## Schedule for M.S. Students\(^2\)

### (Full-time Students)

<table>
<thead>
<tr>
<th>Activity</th>
<th>When</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identify at least two faculty members you are interested in working with, and contact them prior to or during the application process.</td>
<td>1. Prior to application</td>
</tr>
<tr>
<td>2. Confirm major advisor.</td>
<td>2. After application, prior to acceptance.</td>
</tr>
<tr>
<td>3. Initial advising and selection of first term classes</td>
<td>3. Before first term classes begin</td>
</tr>
<tr>
<td>4. 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.</td>
<td>4. Convene committee meeting in 1(^{st})-2(^{nd}) term; <em>program of study must be filed before completing more than 18 credits of graduate coursework.</em></td>
</tr>
<tr>
<td>5. Prepare research proposal in consultation with major professor; after approval, circulate proposal to all committee members, meet with committee members to discuss proposal, and revise proposal based on comments.</td>
<td>5. 1(^{st})-3(^{rd}) term</td>
</tr>
<tr>
<td>6. Seek financial support for proposed project</td>
<td>6. Ongoing and as needed</td>
</tr>
<tr>
<td>7. Complete courses in Graduate Program</td>
<td>7. Recommended by 4(^{th}) term</td>
</tr>
<tr>
<td>8. Submit draft of thesis to major professor; revise as necessary</td>
<td>8. At least one term before oral examination</td>
</tr>
<tr>
<td>9. Submit copies of complete thesis to committee members</td>
<td>9. At least two weeks before oral examination</td>
</tr>
<tr>
<td><strong>10. Schedule final defense with Graduate School</strong></td>
<td>10. Two weeks prior to oral examination</td>
</tr>
<tr>
<td>11. Oral examination</td>
<td>11. 4(^{th}) term or later, but only with approval of major professor</td>
</tr>
<tr>
<td>12. Submit one electronic PDF copy of the final, revised thesis to the advisor, and one electronic PDF copy to the OSU ScholarsArchive with the signed ETD form.</td>
<td>12. Within six weeks of oral examination</td>
</tr>
<tr>
<td>13. Exit interview</td>
<td></td>
</tr>
</tbody>
</table>

---

\(^2\) Check with Graduate School for specific deadlines for graduation
I. Introduction

This handbook was developed to provide information to graduate students in the Water Resources Science program at Oregon State University. It consolidates information for students entering a degree program in 2017 or later. Please refer to the OSU Graduate School web site (http://gradschool.oregonstate.edu/) for the Graduate School Guide to Success for the most important Graduate School regulations.

The Water Resources Science degree program is designed to train students broadly in water resources while maintaining an intellectual affiliation with a secondary field. Allied fields include ecology, forest science, geology, oceanography, atmospheric sciences, climatology, geomorphology, soil physics, geochemistry, public health, and microbiology. Many of these disciplines now have significant overlap with hydrology, and demand has increased for scientists trained in these areas to command knowledge of hydrology. Our increasing understanding of the connections between the biosphere and the hydrosphere are driving the emergence of the field of ecohydrology. Geologists have long been concerned with hydrology, and most groundwater issues require knowledge of geology. Problems in global change are increasingly recognized as linked to the land surface through freshwater runoff into the world’s oceans and evapotranspiration. All of these problems require training in both hydrology and other areas of science. Graduates of the WRS degree program will have met three sets of program requirements (see below) and achieved the Graduate Learning Outcomes (Appendix F):

Students in the WRS degree program must meet three sets of requirements.

1. **Entrance Requirements** All students entering the WRS degree program will be required to show basic competence in chemistry, physics, mathematics to integral calculus, and advanced competence (upper-division) in one science.

2. **Program Requirements** Students will complete a standard MS (45 cr.) or PhD (108 cr.) program with coursework based in water sciences, but allowing for significant coursework in another field.

3. **Exit Requirements** Students graduating from the degree program must show that they have a total of 37 cr. of water-related coursework based upon the American Institute of Hydrology (AIH) standards (http://aih. engr. siu. edu/hydro-certification.html). Up to 22 credits of this requirement 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.

II. Graduate Program Requirements and Responsibilities
A. Responsibilities for Completing Graduate Program

The student will assume the major responsibility for his/her 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.

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

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 arise during a student’s programs.

B. Major Professor

Students admitted to the Water Resources Science program as regular graduate students will have a major professor who has agreed to supervise the student’s work. 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.
C. Student’s Graduate Committee

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:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Major Prof</th>
<th>Minor/Other</th>
<th>Grad Rep</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thesis</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

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

1. 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.
2. The committee must be appropriate to represent the proposed course of study and the relevant degree authority. **At least two members of the committee must be members of the Water Resources Science 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 thesis committee and must sign the approved thesis.

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. 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.

The student’s committee for the M.S. degree consists of a minimum of four graduate faculty members: the major professor and two 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 thesis defense. Students seeking an M.S. in Water Resources Science must complete a thesis, there is no non-thesis option for this degree program.

D. Grade Requirement

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.**
E. Program 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 507 Fall Seminar, WRP 524 Sociotechnical Aspects of Water Resources, WRS 505 Spring Seminar, and WRS 507 Journal Club). In addition, students in the WRS degree program are required to take BEE 512 Physical Hydrology, an additional 24 credits of Water Science coursework, and 6-12 credits of thesis preparation (see Appendix A, program checklist and Appendix B, table of suggested courses). Students will work with their advisor to select any elective courses and tailor an appropriate program. Students who wish to minor in another field must take 15 credits in the minor and must have a faculty member from the minor field on their committee. For example, students in WRS can choose to minor in Water Resources Policy and Management, see Appendix B for suggested courses for this minor.

F. Transfer 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. 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.

G. Deficient Student Status

Graduate students are required to maintain a 3.0 cumulative GPA and a 3.0 program GPA. 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 WRS 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 will result in immediate termination from the program, regardless of cumulative GPA.

H. Professional Experience

Every graduate student is encouraged to include some experience of a professional nature in their 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, each student should include other opportunities for professional development in their work before completion of the degree. Examples include:

1. Presentation of research results in a professional context such as:
   a. Professional meeting
   b. Internship report to client
   c. A seminar open to the public
2. Preparation of a competitive grant proposal

I. Assistantships

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.

Thesis students can include only 6 credits of thesis hours on their graduate program, but may enroll for up to 16 credits per term.

J. Continuous Enrollment Policy

"Continuous graduate enrollment refers to the policy of requiring continuous registration of graduate students from the original matriculation until all degree requirements are met." All graduate students in a graduate degree program must register continuously for a minimum of 3 graduate credits and pay fees, regardless of student location, if they will be using any university, department, or program resources (e.g., facilities, equipment, computing or library services, or faculty or staff time including exams) until their degree is granted or status as a graduate student is terminated, unless on authorized leave. See the Continuous Graduate Enrollment Policy on the Graduate School website for the entire description of continuous enrollment and leave of absence requirements.

K. Exceptions to Policy

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

L. Grievance Procedure

The program requires that professional relationships be maintained between faculty and students. When situations arise that cause concern, the student is encouraged to discuss the problem with his or her instructor. If the student is not satisfied with the instructor’s response, the student is encouraged to make written appeal through the following chain of academic administrators until a conclusion is reached: a) Associate Director – WRS; b) WRGP Director; c) Associate Dean of the Graduate School; d) Dean of the Graduate School; 3) Provost.

M. Study Program: Meeting with your Committee and Filing your Program

A Master’s Program – a list of proposed courses you will take – must be filed by all graduate students with the Graduate School. The MS Program must consist of a minimum of 50% graduate “stand-alone” courses (not 400/500 “slash courses”). The Program 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 thesis defense with the Graduate School, 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 completion of 18 hours of graduate course work. This includes hours reserved as an undergraduate student and hours earned as a post baccalaureate, graduate special student, or classified graduate student. A student who does not file a program within the specified deadline will not be allowed to register for the next term.

The program 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 Petition for Change in Graduate Program, available from the Graduate School. It is wise to wait and file one “change” form near the end of the student’s tenure so repeated filings are not necessary.

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.

N. 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. If a research project involves human subjects, students should work with their major professors to submit their research project to the IRB for approval. See: http://oregonstate.edu/research/osprc/rc/humansubjects.htm.

O. Research Requirements for the MS Degree in Water Resources Science

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. The WRS program requires students to complete a thesis. The thesis track 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 thesis.

The Thesis: The thesis 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.

a. the work is a substantial original contribution to the body of knowledge in the student’s field,

b. supervision of the thesis research is by a four-member committee, including a person chosen from a list of Graduate Council representatives;

c. The thesis style is determined by the Graduate School document, Preparation of the Thesis, available at the OSU book store or from the
Graduate School website. The Graduate School examines every thesis to ensure compliance with style requirements.

d. 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.

e. 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 one week 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 C 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. 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 and bound copy of the thesis is provided to the WRGP, a revised but unbound copy is delivered to the Graduate School to be put on permanent deposit in the university library, and one electronic PDF copy is submitted to ScholarsArchive, the OSU Institutional Depository. See the Graduate School website for more information about electronic submittal of the thesis.

P. Application for Degree

Students intending to graduate must file an Application for Degree and pay a graduation fee before the deadline. Deadline dates for filing vary from year to year; students should check with their major professor or program support person to determine deadlines. Making application at the end of the term preceding the term of graduation is encouraged. Filing the application generates 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. The Application for Degree is a one-time fee. If a student applies to graduate, pays the fee, but does not graduate during the term intended, the fee carries over until the student completes. However, the student must re-file the Application for Degree form with a new anticipated date of completion.

Figure 1. Typical Agenda for Oral Defense

1. Call to order and introductions
2. Purpose and format of meeting
3. Public presentation by student (approximately 30 minutes)
4. Open question and answer (approximately 15 minutes)
5. Visitors asked to leave and committee break (if necessary)
6. Review and questioning of student by committee (can include questions about both the research and the coursework)
7. Student excused
8. Committee discusses student’s performance
9. Committee votes on performance of student
10. Student returns and results announced to student
11. Graduate School forms signed
Appendix A. Water Resources Science Checklist

<table>
<thead>
<tr>
<th>WATER RESOURCES SCIENCE PROGRAM OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>To be signed by WRS representatives of student's committee and submitted with the student's program of study. Students must complete these to receive a WRS degree.</td>
</tr>
</tbody>
</table>

**Student’s Name:** ____________________________

**Degree (circle one):**
- **MS**
- **PhD**

**Entrance Requirements**

- One year, Calculus
- Equiv: MTH 251, 252, (253 or 254)
- One year, Physics
- One year, Chemistry
- One year, upper division in Science

**Program Requirements**

**Water Resources Core Courses**

- WRP, WRS, or WRE 507: Water Resources Seminar
  - MS: 2 Credits total
  - PhD: 3 Credits total
- WRP 524: Socio-technical Aspects of Water Resources
- BEE 512: Physical Hydrology
- WRP, WRS, or WRE 505 Water Resources Journal Club*

**Additional Water Science Courses/Credits (approved by committee)**

- MS: 24 Credits
- PhD: 30 Credits

**Thesis Credits**

- MS Research Thesis (6 - 12)
- PhD Research Dissertation (36-45)

**Exit Requirements (may be met in part at previous institution, incl. undergraduate)**

- Professional Preparation Course (e.g. GEO 518)
- 37 cr. of AIH-required water coursework[^3]

<table>
<thead>
<tr>
<th>Major Advisor</th>
<th>Date</th>
<th>WR Program Coordinator</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>WRS Committee Member</th>
<th>Date</th>
</tr>
</thead>
</table>

[^*]: Journal club must be taken in the same term as one of the seminars. Students can choose to take WRP 505 and WRP 507, WRS 505 and WRS 507, or WRE 505 and WRE 507 together, and must take one (MS) or two (PhD) additional seminars, usually (but not limited to) WRP 507.

[^3]: 15 cr. in Category I of the AIH educational criteria ([http://aih.engr.siu.edu/hydro-certification.html](http://aih.engr.siu.edu/hydro-certification.html)) 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.
Appendix B: Core Curriculum for MS in Water Resources Science

Core Courses - Required (9 credits)
WRP 524 Socio-technical Aspects of Water (3 cr.)
WRS, WRP, or WRE 507 Water Resources Seminar (1 cr.)
WRS, WRP, or WRE 507 and 505 Seminar and Journal Club (1 + 1 cr.)
(Master’s students must take a total of 2 seminars; one seminar must be taken concurrently with the journal club)

Water Resources Engineering - Required Courses
BEE 512 Physical Hydrology (3 cr.)
BEE 529 Biosystems modeling or equivalent (3 cr.) (AIH Category 2)
A course in either groundwater hydraulics or open channel hydraulics must be included in the additional 15 credits of water engineering coursework for the PhD. An additional 9 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 can be found at:

http://oregonstate.edu/gradwater/wrqp-courses

Suggested Courses for a Policy and Management Minor
Students who wish to minor in Water Resources Policy and Management must take 15 additional credits in courses related to Water Resources Policy and Management (see web site above for list of potential courses).
Appendix C: Proposal Structure

You must make a proposal to your major professor and committee about what you plan to do in your thesis research. 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.

Thesis Proposal Structure

A thesis 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 approach (es) may be appropriate.
Appendix D: Graduate School Forms and Other Sources

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 http://gradschool.oregonstate.edu/graduate-student-success.

OSU Graduate diploma and commencement deadlines: http://gradschool.oregonstate.edu/progress/deadlines

Information about graduate degrees can be found at http://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 3rd floor of Kerr Administration Building, or e-mail at 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 http://cwl.oregonstate.edu.

The OSU Academic Success Center: provides assistance with goal setting, study skills, listening habits, time management, and wellness. You can visit MU 203 or on the web go to: http://gradschool.oregonstate.edu/graduate-student-success/grad-student-success-center
Appendix E. Graduate Learning Outcomes and Their Assessment

Graduate Assessment of Learning Outcomes
The Water Resources Science Program Assessment Plan describes the following overarching learning outcomes for students in the graduate program:

“Through participation in and successful completion of the Master of Science in the Water Resources Science (WRS) degree program, students will gain an advanced understanding of water resources science and hydrologic function. Students will be sufficiently trained through disciplinary coursework and research experience to bring hydrologic 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.”

Scholarship
Program graduates demonstrated mastery and application of critical thinking that extends knowledge in water resources science by designing and conducting their thesis or dissertation research and presenting results of this research at their final examination.

Knowledge
By successfully completing the coursework required for the degree program, designing, conducting and presenting the results of a research project, and completing their thesis or dissertation, program graduates demonstrate in-depth disciplinary knowledge and the capacity to apply that knowledge to a water resource issue. Graduates of the WRS program meet the coursework requirements to gain Professional Hydrologist certification through the American Institute of Hydrology (AIH).

Communication and Service
Program graduates have all demonstrated the ability to present the results of their research by completion of assignments in the core course WRP 524, and at professional meetings.

Ethics and Diversity
Graduates of the WRS degree program receive training in ethics through research methods courses, the core course WRP 524, online training in ethics through OSU Office of Research Integrity. Students are encouraged to participate in activities honoring diversity and multiculturalism such as the annual MLK Birthday Celebration.