

Checklist for Water Resources Policy and Management Degree

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.

Student Name	Degree (circle one) MS
Baccalaureate Requirements	
Baccalaureate in natural resources, policy, management, or other baccalaureate degree	
Program Requirements	
Water Resources Core Courses	
WRX 507/607: Water Resources Seminar MS: 2 Credits total	
WRX 505 Water Resources Journal Club Journal club must be taken in the same term as one of the seminars	
WRP 524: Socio-technical Aspects of Water Resources	
Required Graduate Policy/Mgmt Credits	
Methods and Numerical Skills	
PPOL 524 Applied Research Methods	
Basic Water Science: 6 credits	
Policy and Management: 23 credits total, including:	
PPOL 512 Public Policy Theory (4)	
PPOL 511 Public Administration (4)	
WRP 510 (3-6) Internship; highly recommended for students without prior professional experience in management or policy	
Thesis or Research	
Thesis/Project Credits WRP 503	
MS Research Thesis (6 – 12)	
MS Project (3 – 6)	
Total credits	
MS: ≥45 credits	
Signed: Student	Date:
Signed: Major Advisor	Date:

Appendix B: Curriculum for Water Resources Policy and Management

Core Courses - Required (9 credits)

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)

Methods and Numerical Skills (9 cr.)

Basic Water Science (6 cr.)

Policy and Management (21 cr.)

PS 571 Public Policy Theory (4) required

PS 572 Public Administration (4) required

15 additional policy credits from electives.

A list of water-related courses that can be used to meet these course requirements can be found at:

<http://oregonstate.edu/gradwater/wrgp-courses>

Appendix C: Comparison of Thesis and Project Options

	Thesis	Project
Purpose	Presents original research that contributes to the scholarly literature relevant to the practice of water resources policy and management.	Contributes to the practice of water resources policy and management via applied research and/or creative accomplishment.
Format	Formatted according to Graduate School requirements	Format is choice of student and advisor. A project may take many forms. All projects must be noteworthy for approach, content and accessibility to their target audience.
Data Collection and Analysis	Supervised research focused on original research, including literature review, data collection and analysis, and writing.	Uses methodology appropriate to the practice of WRPM. This can include scientific research methods, application of analytical tools such as GIS or remotes sensing to WRPM issue, literature review and/or the collection of material for extension and outreach materials. Can, but does not need to, involve primary data collection by the student.
Committee	Advisor, two additional committee members and graduate representative	Advisor and two additional committee members
Standard expected	Research must be publishable or have the potential to be published in a peer-reviewed journal.	The project report must communicate effectively findings, results and/or outreach materials to an audience of water resources practitioners. The project content must be well researched, relevant to its target audience, reliable and academically defensible. The examining committee must agree that with little modification the project report or project materials have the potential to be released to the public by a state agency, non-governmental organization, private consultancy, and/or university extension service.
Length	The length of thesis or research paper is not an indication of quality or difference between the two. Actual length will depend on the topic, methods and final product as agreed with the students committee. Both a thesis and project must be succinct as possible and each must be effectively communicated to its target audience.	
Job qualification	Job applicants often are asked to provide evidence of writing ability, and ability to work independently. Both the thesis and the project provide evidence of this ability.	

Appendix D: Proposal Structure

Regardless of whether you do a thesis or project report, you must make a proposal to your major professor (and committee in the case of the thesis option) 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. While the content of the thesis proposal is a bit different from the project report, the design of the proposal is very similar.

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 approaches may be appropriate.

It is often useful to have a conceptual model of anticipated results and how different results will help answer the proposed research question.

Project Proposal Structure

The organization of a project proposal typically parallels that of a thesis 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 policy and management.
- 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.

It is often useful to have a conceptual model of anticipated results and how different results will help answer the proposed research question.

Appendix E: 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 in these offerings 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 <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 F. 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

Appendix G. Graduate Learning Outcomes and Their Assessment

The Water Resources Policy and Management Program Assessment Plan describes the following learning outcomes for students in the WRPM program:

“Through participation in and successful completion of the Master of Science in the Water Resources Policy and Management (WRPM) degree program, students will gain an advanced understanding of water resources policy, methods, and sustainable management of water resources. Students will be sufficiently trained through disciplinary coursework and research experience to bring policy expertise to a water resources issue, and will have sufficient breadth of knowledge in water resources science and environmental issues to communicate with professionals from a broad range of specialties involved in water resources management and research and the public interested in water resources policy and management.”

Scholarship

Program graduates demonstrated mastery and application of critical thinking that extends knowledge in water resources policy and management by designing and conducting their thesis or project 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 project paper, program graduates demonstrated in-depth disciplinary knowledge and the capacity to apply that knowledge to a water resource issue. Coursework required for the WRPM degree program trains students in theory and methods, and how to integrate water resources concepts across multiple disciplines at multiple scales.

Communication & Service

Program graduates demonstrate the ability to present the results of their research by completion of assignments in the core course WRP 524, at the Pacific Northwest Water Resources Research Symposium held at OSU in Spring term, and at professional meetings.

Ethics and Diversity

Graduates of the WRPM degree program receive training in ethics through research methods courses, the core course WRP 524, and 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.

Achievement of these learning outcomes is assessed at the final defense by the committee, using the form on the following page (Attachment 1).

Attachment H: Scoring Guide (Rubric) for Graduate Learning Outcome Assessment MS DEFENSE EXAM* in Water Resources Policy and Management

Date: _____

Candidate Name: _____

Title of Thesis / Project: _____

Evaluation/Guidance	Does not meet Expectations	Meets Expectations
1. Problem Definition: Has stated the research/project problem clearly, providing motivation for undertaking the research		
2. Literature and Previous Work: Demonstrated sound knowledge of literature in the area, and of prior work on the specific research/project problem		
3. Impact of Research/Project: Demonstrated the potential value of solution to the research/project problem in advancing knowledge within the area of study		
4. 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		
5. Results: Analyzed and interpreted research/project results/data effectively		
6. Quality of Written Communication: Communicates research/project results clearly and professionally in written form		
7. Quality of Oral Communication: Communicates research/project results clearly and professionally in oral form		
8. Critical Thinking: Has demonstrated capability for independent research/project in the area of study and expertise in the area		
9. Broader Impact: Demonstrated awareness of broader implications of the concluded research/project. Broader implications may include social, economic, technical, ethical, business, etc. aspects.		
10. 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 THESIS EXAM	
	<i>Does NOT PASS Exam</i>	<i>PASSES Exam</i>
OVERALL, My rating of the Thesis / Project Paper 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

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

Appendix I. Plan for 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^{1, 2}.

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

1. Participating in an annual assessment survey showing adequate progress in coursework, and timely compliance with all development of thesis 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.
2. Maintaining a GPA of 3.00 or better for all courses taken as a graduate student,
3. Successfully passing relevant exams (as outlined by the Graduate School),
4. 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.

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.

¹ 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.

² 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 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: (1) Coursework taken and grades received, (2) Field work, data collection/analysis, (3) Progress on writing thesis, (4) Participation in Hydrophiles organization and/ or professional development opportunities, (5) Service to the Department and the University, (6) the students communication methods and schedule with adviser, and (7) Any other relevant information, including any impediments to progress.

b. 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.

c. 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.

d. 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.

Attachment #1: OSU Water Resources Graduate Program Instrument for Assessment of Master's Student Academic Progress

Student Name _____ **Date of Assessment:** _____

Please carefully review the WRGP Plan for Assessment of Satisfactory Academic Progress (Pages 1 & 2 of this document) and complete in accordance with the WRGP Plan. **This completed form must be attached to the self-assessment narrative and submitted to the WRGP Department Office before June 30th each year.**

1. Completion of Milestones (Students- please complete this section):

Enter term of completion (e.g. 'Fall '18') next to milestones achieved for your current degree.

a. Committee formed (Enter names below, beginning with your advisor or major professor):

Major Professor _____

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 Director and Associate Director (date):

e. Final exam scheduled for: _____

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

2. 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 thesis or research project paper
		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:

Attachment #2: 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 _____