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Program Description

Introduction
The objective of the Environmental Science Graduate Program is to give students who wish to pursue a career as environmental scientists the opportunity to take a constellation of courses from the sciences (life, physical and social) as well as engineering and education.

The interdisciplinary degree program allows students the unique opportunity to develop a plan of study which addresses individual career goals. Working with 30 different departments on campus allows students to choose from more than 200 courses. Studies can focus on areas such as toxicology, risk assessment, education, sustainability, ecology, water, policy, conservation, soils and other topics that the students and faculty deem important for the future of the environment.

History
The Environmental Science Graduate Program (ESGP) at Oklahoma State University (OSU) is one of the oldest programs in the nation, having been founded in 1977. Over the last several decades, our program has graduated more than 144 Ph.D. and 355 M.S. students. ESGP graduates have gone on to be leaders in every facet of the environmental field. These individuals are now lead scientists at the U.S. Environmental Protection Agency (EPA), professors and deans at major universities, leaders in industry and the energy sector, CEO’s of environmental consulting firms, sustainability experts, tribal environmental program leaders, environmental educators, and leaders in a wide variety of municipal, state and federal agencies.

Our students are housed among many academic departments including Agricultural Economics, Economics, Leisure Studies, Plant and Soil Sciences, Natural Resources Ecology and Management, Biosystems and Agricultural Engineering, Geology, Geography, Political Science, Educational and School Psychology, School of Teaching and Curriculum Leadership, Sociology and Integrative Biology. There have been more than 130 faculty affiliated with the ESGP at OSU and over 70 of these have served as faculty advisors.

Degree specializations
- **Environmental Education**: Prepares students for careers in teaching K-12, teaching or researching at higher educational institutions, research facilities, corporations, and government agencies.
- **Environmental Management**: Prepares students for professional environmental practice in consulting, industry, government, and non-profit groups.
- **Environmental Sustainability**: Prepares students to take a sustainable approach to their lives and address public awareness of the responsibility to increase recycling, reduce consumption, and develop renewable energies.
- **Environmental Chemistry, Toxicology, and Risk Assessment**: Emphasizes relationships among environmental contaminants, their fate and transport through the environment, and their effects on ecological and human receptors.
- **Water and Watershed Management**: Emphasizes the relationships between clean water and watershed management.
Department Goals

Mission Statement
The Environmental Science Graduate Program provides interdisciplinary understanding and appreciation of the interdependent relationships between social and natural systems, and the skills to analyze, synthesize, manage, and disseminate environmental knowledge and research to find practical solutions to complex environmental problems.

Core Values
- **Excellence** - We seek excellence in all our endeavors and are committed to continuous improvement.
- **Intellectual Freedom** - We believe in ethical and scholarly questioning in an environment that respects the rights of all to pursue knowledge freely.
- **Integrity** - We are committed to the principles of truth and honesty and we will be equitable, ethical, and professional.
- **Service** - We believe that serving others is a noble and worthy endeavor.
- **Diversity** - We respect and value diversity of opinion, freedom of expression, and other ethnic and cultural backgrounds.
- **Resource Stewardship** - We are dedicated to the efficient and effective use of resources. We accept the responsibility of the public’s trust and are accountable for our actions.
- **Sustainability** - We are committed to promoting societal development that is environmentally, economically, and socially sustainable.
- **Interdisciplinary Education and Research** - We recognize that environmental education, research, and service require an interdisciplinary understanding of the interactions and interdependencies between humans and nature; thus, we seek to incorporate interdisciplinary knowledge in our courses and interdisciplinary collaboration in our research.

Vision
The Environmental Science Graduate Program will have a national reputation in preparing students for successful careers in environmental professions and contributing to the advancement of environmental science.

To accomplish this, we will:
- Provide an interdisciplinary, but focused, curriculum that enables students to participate effectively in addressing environmental problems;
- Provide skills necessary to conduct and present environmental research; and
- Gain the support of alumni, employers, internship sponsors, and friends in our efforts at continuous improvement.
Administration & Staff

The Environmental Science Graduate Program is administrated by the Graduate College. The departmental office is located at 117 Life Sciences East, Oklahoma State University, Stillwater, OK 74078.

Director

In 2012, Dr. Sheryl Tucker, Dean of the Graduate College, appointed Dr. Scott Stoodley as the ESGP Director. Since becoming director, Dr. Stoodley led the efforts to develop a new specialization, entitled the Professional Science Master’s in Environmental Management. Dr. Stoodley has over 20 years of experience with water quality and other environmentally-related issues. He is federally appointed to the Northern Federal District Court of Oklahoma overseeing the lawsuit settlement agreement between the City of Tulsa and the Poultry industry over pollution of their water supply. He is the founder and President of Lake McMurtry Friends, which manages a 4,500 acre natural resource area for the City of Stillwater. In addition, he is currently President of the Oklahoma Clean Lakes and Watershed Association. During his career, he has worked for private industry, academia, non-profit organizations, and state government. Dr. Stoodley was previously the Director of Water Quality for the Oklahoma Conservation Commission in Oklahoma, overseeing the state’s CWA Section 319 program. His responsibilities included oversight of a state-wide water quality monitoring program, watershed assessment and planning, large and small-scale watershed restoration/ implementation projects, environmental education, and working with the legislature. His PhD is from Oklahoma State University, where he worked with the Oklahoma Cooperative Extension Service and the Natural Resources Conservation Service. Subsequently, Dr. Stoodley worked for AMEC Earth & Environmental as a Senior Program Manager of Water Resources, overseeing all water resources-related programs for the Northeastern US. He also served on the National Water Resources Steering Committee, shaping policy and business strategy for the company throughout North America. Prior to his return to Oklahoma, Dr. Stoodley was a Vice President of Water Resources for ENTRIX Inc., overseeing their growth in the New England marketplace and continued work throughout the State of Oklahoma.

Associate Director

In 2013, Dr. Tucker appointed Dr. Ken Ede as the Associate Director for the ESGP in Tulsa. He is also an adjunct professor in Management in the OSU Spears School of Business. Previous to this position, Dr. Ede served as the Assistant Dean of Engineering at Oklahoma State University. Ken received his Ph.D. from Oklahoma State University in Environmental Science studying under Dr. Marcia H. Bates in the School of Civil and Environmental Engineering. Dr. Ede is a Certified Hazardous Materials Manager (CHMM). He has taught numerous credit and non-credit environmental seminars, workshops and courses for Oklahoma State University and served as the Non-Credit Curriculum Director for OSU’s Professional Development Office for the School of Engineering. In addition to his academic contributions to Oklahoma State University, Dr. Ede served 18 years as the Environmental Health & Safety Manager for American Airlines Maintenance and Engineering Center in Tulsa, Oklahoma. Dr. Ede’s thrust areas of research include Environmental Chemistry, Environmental Management, and Industrial Environmental Sustainability.

Coordinator

Dr. Kerri Farnsworth-Hoback joined the ESGP in 2017. Dr. Farnsworth was previously a Professor of Biology and Science Education at the University of Nebraska at Kearney; her tenure there included serving as the Program Chair for the Master of Science in Science & Math Teaching. Dr. Farnsworth earned a PhD in Rangeland Ecosystem Science from Colorado State University. Her research characterized grasshopper community dynamics using spatial and multivariate analyses. She also held a post-doctoral position with the USDA Agricultural Research Service, where her focus was the prioritization of noxious weeds for biological control program development.
Degree Programs

Master of Science (MS)
An MS degree in Environmental Science requires students to complete a 36 credit hour course of study which includes:

Core Course Requirements

*ENVR 5123 Environmental Problem Analysis*
The purpose of this 3 credit hour course is to provide the students with an understanding of how to holistically approach environmental problem solving from an interdisciplinary perspective. Students will learn a methodological approach to problem solving. Students will also work in teams with individuals that have varying backgrounds in order to solve a real world environmental problem.

*ENVR 5303 Issues in Environmental Sustainability*
The course reviews human-nature relationships and how they affect the ability of future generations to sustainably improve their quality of life. The course also considers methods of environmental stewardship that can contribute to sustainability. In-class and/or online discussions of issues, guest presentations by outside experts, and reports on selected topics are included.

*ENVR 5533 Genres of Environmental Writing*
This course focuses on three written genres: proposals, reports and academic articles. Students will learn the basic Introduction, Methods, Results, and Discussion (IMRD) structure. This structure is the basis of workplace reports and research articles in a wide variety of academic disciplines. Students will examine how the language features and organizational structure of these documents are influenced by their audience and context.

*Natural or Physical Science*
A minimum of 3 credit hours of natural or physical sciences is required. The student should consult with their academic advisor to select a course that is environmentally related and consistent with the student’s Plan of Study.

*Skills Course*
A skills course is required to ensure that students learn practical skills that will ultimately help them in their future workplace. Master’s students should take at least one 3 hour course. Students should consult with their advisor and committee for guidance on relevant courses that will fulfill this requirement.

Research Requirement

MS students must complete one of the following research options: Thesis, Creative Component, or Report. The Thesis option consists of 30 hours of courses and 6 hours of Thesis; the Report option consists of 34 hours of courses and 2 hours of Thesis; the Creative Component option consists of 36 hours of courses. All options include an oral or written presentation of a research proposal and an oral defense of the final product. The ESGP program is an interdisciplinary program and thus the students’ research efforts are expected to address an environmental problem from multiple perspectives, which should include a social and/or economic perspective.

Advisory Committee

The MS student’s Advisory Committee will consist of at least three members of the OSU Graduate Faculty. One committee member will serve as the student’s research advisor. Students consult with their advisor and committee to create a Plan of Study and meet regularly to review progress. The Plan of Study must be submitted to the Graduate College and ESGP Coordinator prior to the completion of the second semester (excluding summer sessions) of enrollment in the Master’s program. For more information about the Plan of Study, including making changes to an approved plan or to the composition of the Advisory Committee, see gradcollege.okstate.edu/planofstudy. Note that adjunct faculty cannot serve as committee chairs.
Professional Science Master's (PSM)

The Environmental Management Professional Science Master's (PSM) Degree is an innovative graduate degree designed to allow students to pursue advanced training in science or mathematics, while simultaneously developing highly valued workplace skills. The program combines rigorous study in environmental science with skills-based coursework related to management, policy, or law. Students gain additional hands-on professional experience by completing a capstone project and internship.

The PSM program is located on our satellite campus in Tulsa, Oklahoma. Coursework is typically taught in Tulsa and most classes take place between 4:30 and 10:00 p.m. to accommodate the needs of industry professionals who are earning the degree while maintaining full-time employment. This degree option is not a traditional master’s degree and does not require a thesis. As a terminal degree with an applied focus, the PSM is designed for those who do not intend to pursue a PhD.

Core Course Requirements

**ENVR 5123 Environmental Problem Analysis**

The purpose of this 3 credit hour course is to provide the students with an understanding of how to holistically approach environmental problem solving from an interdisciplinary perspective. Students will learn a methodological approach to problem solving. Students will also work in teams with individuals that have varying backgrounds in order to solve a real world environmental problem.

**ENVR 5303 Issues in Environmental Sustainability**

The course reviews human-nature relationships and how they affect the ability of future generations to sustainably improve their quality of life. The course also considers methods of environmental stewardship that can contribute to sustainability. In-class and/or online discussions of issues, guest presentations by outside experts, and reports on selected topics are included.

**ENVR 5533 Genres of Environmental Writing**

This course focuses on three written genres: proposals, reports and academic articles. Students will learn the basic Introduction, Methods, Results, and Discussion (IMRD) structure. This structure is the basis of workplace reports and research articles in a wide variety of academic disciplines. Students will examine how the language features and organizational structure of these documents are influenced by their audience and context.

**ENVR 5503 Environmental Management Practicum**

This course introduces strategies for the design and operation of environmental management systems that reduce environmental impacts in conformance with ISO 14000 standards. Topics include aspect identification, impact assessment, impact reduction strategies, and management oversight. Other topics such as training, internal and external auditing, and integration with other management programs will also be addressed.

**ENVR 5510: Environmental Management Internship**

The student must identify and solve an environmental problem under the supervision of a competent professional environmental manager, and submit and defend a formal report presenting the problem, solution analysis methodologies, and recommended solution. The internship must involve at least 240 contact hours with the manager. (From this course the student will develop a “Creative Component” report.)

**Natural or Physical Science**

A minimum of 3 credit hours of natural sciences or physical is required. The student should consult with their academic advisor to select a course that is environmentally related and consistent with the student’s Plan of Study.

Internship

The internship is generally taken during the last semester of the PSM degree for three (3) credit hours. It can be taken earlier but must involve at least 240 contact hours under supervision of a knowledgeable professional environmental
manager. During the internship, the student must identify an environmental problem and solve and/or propose well-researched possible solutions to the problem. The student is responsible for submitting written weekly progress reports to their committee to document their progress. The internship culminates in a written Creative Component report and an oral defense presentation.

Creative Component

The Creative Component for the PSM degree is specific and industry-focused. Students develop a Creative Component Proposal and submit to their Advisory Committee for approval in advance of their internship semester. Upon completion of the internship, the ESGP student is expected to demonstrate, through a written report and oral presentation, that she/he can apply environmental science principles in an actual decision-making situation in a manner that is satisfactory to the student's graduate committee. See Creative Component Guidelines for details.
Doctor of Philosophy (PhD)
The Doctor of Philosophy degree requires a minimum of 60 credit hours beyond the MS degree. The Ph.D. curriculum includes 36-45 hours of course work hours and 15-24 dissertation hours. The course work will include the following:

Core Course Requirements

*ENVR 5123 Environmental Problem Analysis*
The purpose of this 3 credit hour course is to provide the students with an understanding of how to holistically approach environmental problem solving from an interdisciplinary perspective. Students will learn a methodological approach to problem solving. Students will also work in teams with individuals that have varying backgrounds in order to solve a real world environmental problem.

*ENVR 5303 Issues in Environmental Sustainability*
The course reviews human-nature relationships and how they affect the ability of future generations to sustainably improve their quality of life. The course also considers methods of environmental stewardship that can contribute to sustainability. In-class and/or online discussions of issues, guest presentations by outside experts, and reports on selected topics are included.

*ENVR 5533 Genres of Environmental Writing*
This course focuses on three written genres: proposals, reports and academic articles. Students will learn the basic Introduction, Methods, Results, and Discussion (IMRD) structure. This structure is the basis of workplace reports and research articles in a wide variety of academic disciplines. Students will examine how the language features and organizational structure of these documents are influenced by their audience and context.

*Natural or Physical Science*
A minimum of 3 credit hours of natural or physical science is required. The student should consult with their academic advisor to select a course that is environmentally related and consistent with the student’s Plan of Study.

*Skills Course*
A skills course is required to ensure that students learn practical skills that will ultimately help them in their future workplace. Doctoral students should take 6 hours. Students should consult with their advisor and committee for guidance on relevant courses that will fulfill this requirement.

Advisory Committee
The PhD student’s Advisory Committee will consist of four faculty members from at least two departments and at least two different Graduate Faculty groups. The outside committee member is to represent the Dean of the Graduate College, must be a full member of the Graduate Faculty, and may not be from the same department as the Committee Chair. Students consult with their committee to create a Plan of Study prior to completion of their 28th credit hour (third semester). Note that adjunct faculty cannot serve as Advisory Committee chairs.

Admission to Doctoral Candidacy
Doctoral students must be admitted to candidacy no less than six months prior to graduation and maintain continuous enrollment of at least two credit hours in every fall and spring semester until graduation. The Graduate College requires the following to fulfill the candidacy requirements for the doctoral degree:

1. An approved Plan of Study
2. A dissertation proposal which has been approved by the student’s Advisory Committee
3. Successful completion of comprehensive examinations.
Comprehensive Exams
Doctoral students are required to take both written and oral comprehensive exams. The student’s Committee Chair will be responsible for conducting the exams. Doctoral students must take the comprehensive exam after completing (1) at least 30 hours, but no more than 45 hours, of course credit and (2) before enrolling in the last 10 hours of dissertation research (ENVR 6000). Exceptions may be granted only with approval of the student’s Committee Chair and the ESGP Director. The presentation of the dissertation proposal is usually integrated with the oral portion of the comprehensive exam, although this is not a requirement. See Conduct of Doctoral Comprehensive Exams for additional information.

Doctoral Candidacy Enrollment Requirements
Doctoral students who have completed the requirements for admission to doctoral candidacy and had their “Admission to Doctoral Candidacy” form approved by the Graduate College may enroll for a minimum of at least two credit hours during any term and be considered full-time. This post-candidacy reduced enrollment option applies to all qualified graduate students, including GTAs, GRAs, international students and veterans receiving VA benefits. A student is normally expected to enroll primarily in research hours or in program-approved courses after being admitted to doctoral candidacy.

Dissertation
Every doctoral student must complete and defend a research-oriented dissertation. As the ESGP program is an interdisciplinary program, the students’ research efforts are expected to address an environmental problem from multiple perspectives, which should include a social and/or economic perspective. Students will work closely with their committee members to develop a dissertation proposal; this is typically presented to the Advisory Committee in conjunction with the oral portion of the comprehensive exam. See Preparation and Defense of a Dissertation Proposal for additional information.

Upon successfully defending the research proposal, students will work to complete their dissertation and consult with committee members to schedule a final dissertation defense. The dissertation defense includes a public seminar and a closed examination by the advisory committee.
Policies and Procedures

Admissions

Program Prerequisites
All students are required to have completed college-level courses that address the fundamentals and principles of chemistry, biology, ecology, and algebra prior to admission. When the letter grade earned in a prerequisite course is less than “B”, the prospective student may be asked to retake the course or take another that will prove proficiency. A partial list of courses which fulfill these prerequisites is available on the ESGP website.

Application Requirements
Prospective students applying to the Environmental Science Graduate Program complete an online application with the OSU Graduate College that includes the following:

1. A non-refundable application fee.
2. One original transcript from each college or university attended. For Ph.D. applicants, the cumulative grade point average (GPA) must be 3.0 or higher. All transcripts should be scans of official transcripts showing the college’s or registrar’s original seal and any degrees completed.
3. TOEFL/IELTS (if required to establish English proficiency). A minimum iBT TOEFL score of 79 (or 550 paper based), or a minimum IELTS overall score of 6.5 is required.
4. GRE test score completed within the past 5 years. The GRE requirement will not be waived.
5. Current and complete resume or Curriculum Vita. For Ph.D. applicants, this should include the citation of the completed Master’s thesis.
6. A Goal Statement (1-2 pages) explaining how prior academic and professional experiences have prepared the applicant for graduate-level study and how the degree program will contribute to the applicant’s career aspirations and desired areas of competency.
7. Three letters of recommendation. These should be from individuals who know the student professionally, including academic advisors and former professors who can address applicant’s academic record and potential for successful graduate-level work.
8. An Agreement to Advise Statement from an OSU faculty member who will serve as the student’s advisor and Committee Chair; this can be in the form of an email from the advisor to the ESGP Coordinator. The applicant is responsible for contacting faculty to secure their consent to serve as advisor. A list of faculty with environmental science research interests is available on the ESGP website. (Applicants to the PSM program are advised by Dr. Ede.)

Financial Affidavit
The Graduate College requires a financial statement for international applicants expecting to be F1 or J1 visa holders. This Financial Guarantee documents the availability of sufficient financial resources to meet the student’s prospective educational and living expenses while in the U.S. This document must be completed before a Certificate of Eligibility (I-20 or DS-2019) can be issued.
Academic Policies

These departmental guidelines are intended to complement the University Academic Regulations and the University Catalog published by the Registrar, as well as the Graduate Catalog. Students should consult those sources for additional information.

Transfer of Credits

With approval, a student may transfer a maximum of nine semester hours of credits that have not been applied toward a previous degree. Transferred credit must have been earned when the student was post-baccalaureate (i.e. after earning a bachelor's degree) at an accredited institution where the applicable course work was certified as graduate-level credit. Only courses in which a grade of "B" or better was earned will be considered for transfer credit.

Graduate Credit Courses

Courses numbered 5000 and above are for graduate students. Courses numbered 3000 and 4000 that are identified by an asterisk in the "Course Descriptions" of the Catalog can be taken by graduate students and may be used to meet requirements for a graduate degree on the Plan of Study if approved by the student's Advisory Committee and the Dean of the Graduate College. In order to receive graduate credit, students must enroll in the G section of the course. Graduate students enrolled in these courses will be considered as taking the courses for graduate credit (unless they pre-declare the course as taken for undergraduate credit; forms are available from the Graduate College) and will be expected to complete additional assignments at an intellectual level commensurate with graduate level work as proposed by the instructor.

Courses that are not identified by an asterisk may not be used to fulfill requirements for a graduate degree. Senior undergraduates who have obtained prior approval from the Graduate College may enroll in graduate level courses in accordance with the provisions of the University Catalog.

Academic Standing

Minimum Grade Requirements. A grade-point average of "B" (3.00) is required to (1) maintain good standing as a graduate student and (2) meet requirements for a degree. In order to continue enrollment in the Graduate College, a student is expected to maintain a minimum graduate GPA of at least 3.00. In order to receive a degree, a student must have a minimum 3.00 GPA in the course work listed on the Plan of Study. In determining whether a student has met minimum requirements for a degree, grades for courses on the Plan of Study are averaged separately from courses not on the Plan of Study. No course with a grade below "C" can be used as part of the minimum number of semester credit hours required for the graduate degree. At the graduate level, a grade of a "D" or "F" is considered a failing grade that can result in dismissal by the dean of the Graduate College, regardless of academic standing. No course with a grade of "D" or "F" can be used on the Plan of Study to satisfy the degree course requirements.

Academic Progress

Each semester, the academic progress of all graduate students is reviewed. Any graduate student who receives a grade of “C” or lower in a class or “UR” in research will be subject to one of the following actions, depending on the student’s current performance, past academic history, and the discretion of the Dean of the Graduate College:

1. **Program Notice.** The program department will review the student’s performance to determine if any program intervention is needed.
2. **Academic Probation.** If a student’s overall GPA drops below 3.00, if a “UR” grade is earned, or if the dean of the Graduate College judges the student’s overall academic performance so warrants, the student will be placed on academic probation. Probation may be removed at the end of the semester only after the student (a) brings their cumulative GPA for courses eligible for graduate credit taken at OSU to 3.0 or greater, (b) earns a grade of SR, and/or (c) completes all degree requirements, whichever comes first.
3. **No Further Enrollment Without Program Consent (NFEWPDC).** Under certain circumstances, such as when (a) the student was admitted on academic probation and did not meet the requirements of this admission, (b) the student has received two consecutive grades of “UR”, (c) student was on academic probation the previous semester, or (d) the Program Director believes the student’s overall academic performance warrants intervention, the student is not permitted to enroll further without the consent of the program. To continue in the program, the student must submit a written petition to the Dean of the Graduate College requesting reinstatement and outlining a plan to remedy the academic situation. This
petition must be accompanied by a letter of support from the Program Director. Failure to submit such a reinstatement petition could result in the canceling of any pre-enrollment for the upcoming semester.

4. **No Further Enrollment (NFE).** When the student has consistently performed below the acceptable standards for graduate students, the student is not permitted to continue graduate study at OSU. In such cases, the procedure outlined in the Graduate College Catalog will be followed.

**Grades & Appeals**

Policies regarding grades for thesis and dissertation hours, Creative Component courses, and courses taken under the Pass-No Pass or Pass-Fail grading system, as well as grade appeals, can be found in the Graduate College University Catalog at registrar.okstate.edu/University-Catalog-Graduate-College.

**Advisory Committee Decisions**

In decisions resulting from a vote of a graduate student Advisory Committee (e.g., PhD candidacy exam, final thesis defense, approving a dissertation, etc.), a passing vote requires that the thesis/dissertation advisor vote in the affirmative and that no more than one member of the committee dissent.

**Responsible Conduct of Research**

All graduate students are required by university policy to complete, on a one-time-only basis early in their graduate study, an online training module on responsible conduct of research (RCR). RCR training must be completed prior to filing a Plan of Study. Training course information is available online at http://compliance.okstate.edu/rcr/training. The student is responsible for completing the training, printing the completion certificate, and bringing it to the ESGP Coordinator for filing. Any research involving human subjects is governed by federal regulations that require review by the OSU Institutional Review Board (IRB). Approval to conduct the research must be obtained from the IRB before the research is started. Failure to obtain IRB approval will result in the University’s rejection of the thesis, dissertation, or formal report. Information about the IRB review process is available at http://compliance.okstate.edu.

**Graduation Clearance Process**

A Graduation Clearance Form must be submitted to the Graduate College and ESGP Program Coordinator prior to the graduating semester. The Graduation Clearance form is completed in conjunction with the academic adviser and confirms that a student has met, or will meet by the end of the semester in question, all departmental and Graduate College requirements to earn the degree sought. If these requirements are not met, the student must complete a new Graduation Clearance Form and Graduation Application for a future semester. Deadlines are set by the Graduate College; students are urged to submit forms as early as possible in the graduating semester to allow opportunity for class schedule changes necessitated by the review of the Graduation Clearance Form.

**Workshop Requirement**

All graduate students who intend to complete a thesis or dissertation are required to attend a workshop to review policies and procedures leading to graduation, as well as thesis/dissertation formatting requirements. Both face-to-face and online webinar formats are offered. See the “Guide to Graduation for Thesis and Dissertation Degree Candidates” tab at http://gradcollege.okstate.edu/tdg.

**Program Assessment**

Upon completion of degree, students must also complete a Program Assessment form and return it to the ESGP Coordinator.
Conduct of Doctoral Comprehensive Exams

Ph.D. students must pass both written and oral exams to be admitted to doctoral candidacy. No exceptions are possible. The Chair of the student’s Advisory Committee is responsible for the administration of the comprehensive exams.

Timing
The doctoral student should take the comprehensive exam (1) after completing at least 30 hours, but no more than 45 hours of course credit and (2) before enrolling in the last 10 hours of dissertation research. Exceptions may be granted only with approval of the student’s Advisory Committee Chair and the Program Director.

The student should consult with their Advisory Committee Chair to determine readiness to take the exam. The Chair should provide guidance on what is expected of the student in the examination. The student is encouraged to consult with other members of their Advisory Committee to ascertain their exam performance expectations.

In practice, the oral portion of the comprehensive exam is usually combined with the presentation of the student’s dissertation proposal. The student may present the proposal in a public forum, after which the public is excused and the Advisory Committee commences the oral questioning in a closed meeting, as described below.

Notification
When a student believes that s/he is ready to take the comprehensive exam, the student will notify the Advisory Committee Chair in writing and send a copy of the notice to the Program Director. The Chair will consult with other committee members to develop a list of questions and formulate an examination schedule. The Chair will inform the student of the schedule and specific examination format. The ESGP Program Coordinator should also be notified if there is a need to reserve a room for the defense; additional advance notice is needed if teleconferencing or videoconferencing is necessary.

Examination Content

Core Competency Areas: Every student must demonstrate competence in the knowledge and skill areas covered by the core curriculum. Therefore, the comprehensive exam should be designed to elicit evidence of adequate competence in these areas.

Area of Claimed Expertise: Since environmental science is interdisciplinary, parts of the comprehensive exam can vary substantially from one student to another. Therefore, the exam will be tailored to the student’s own professional specialization and plan of study. The examination should inquire into the student’s area of claimed expertise, in addition to the core competency areas.

Written Examination

Recommended Format: The written examination must include questions from all committee members. The questions should be designed to elicit evidence that the student has obtained satisfactory mastery of the substantive knowledge and research methods relevant to the student’s claimed area of expertise. The written exam should require the student to present answers that are well-articulated, rational, concise, responsive, and persuasive. As a result, closed-book exams are discouraged. Generally, two or three essay questions and/or problems (each can contain multiple parts) are provided by each committee member to the Advisory Committee Chair. This format requires the student to provide responses in the form of short papers (3-5 pages for each question) which include citations to relevant literature. Two to seven days should be provided between sets of questions; thus, the written portion of the exam takes place over a number of weeks.

Grading: Each question on the written exam should be graded as “high pass,” “pass,” “low pass,” or “no pass” by the committee member who authored the questions. The member should then forward the grades, with comments, to the Advisory Committee Chair. The Chair will review the grades and comments and send a summary of the comments and the consensus grades to the student and the other committee members. If a student earns a “no pass” on any question, the Chair should consult with other committee members and reach consensus on whether to allow the
student to proceed to the oral portion of the exam. If the student is not allowed to proceed, then the Chair will issue a failing grade on the written exam and communicate this to the student, along with the grades and comments provided by committee members. The student must be given a choice to retake the exam in its entirety or withdraw from the program. Only one retake is permitted. If the student wishes to retake the exam, he or she must wait at least three months. The Chair must inform the Program Director that the student did not pass the written exam and indicate whether the student wishes to retake the exam or withdraw from the program. If the committee decides that the student should proceed to the oral exam, then the Chair will so inform the student and provide the grades and comments offered by committee members.

Oral Exam

**Scheduling:** The oral examination should be held no sooner than two weeks nor later than four weeks after receipt of the grades and comments on the written exam. The Program Coordinator should also be notified if there is a need to reserve a room in which to conduct the exam.

**Recommended Format:** The oral exam should be limited to two hours and held in executive session (not open to the public). The Advisory Committee Chair is responsible for the conduct of the meeting. All committee members must participate in the oral examination. Generally, each committee member is allotted about 20 minutes to ask questions, which can include not only follow-up questions to the written examination but also other questions that the committee member believes is relevant to the student’s claimed area of expertise. The Chair usually asks his or her questions after all other members have completed their examinations. The remaining time should be dedicated to an open-ended question and answer format.

**Grading:** At the conclusion of the questioning session, the student is asked by the Advisory Committee Chair to leave the room. The committee members then engage in a discussion to reach consensus on whether the student passed or failed the exam. The student is then be called back into the examination room and informed of the results by the committee. If the student passed, the committee Chair must so inform the Program Director by email, with a copy sent to the Program Coordinator. If the student did not pass the oral exam, then the Chair must inform the student of this and ask whether the student would like to retake the exam or withdraw from the program. Only one retake is permitted. If the student wishes to retake the exam, then the student must wait at least three months and must retake only the oral examination. The committee will provide to the student the appropriate steps to be taken for remediation. The Chair will inform the Program Director and Program Coordinator, by email, that the student has failed the oral exam and indicate whether the student wishes to retake the exam or withdraw from the program.

Student Preparation

**Written Exam:** The student should review course material and relevant literature. Organize notes and literature to ensure that answers to questions can be developed quickly and efficiently. If an open-book format is selected for the written exam, the student should initially prepare an outline for an answer to each question. This outline should include references to literature. The student should then compose the answer organized around the outline (3-5 pages per answer should suffice in most circumstances). Finally, the student should edit the answer to ensure that a well-articulated, thorough, concise, accurate, and compelling response is developed. A list of references must be added at the end of the answer.

**Oral Exam:** The student should review the comments offered by the committee members on the written exam and be prepared to address them. Special attention should be devoted to those questions that the student received grades of “low pass” or “no pass.” The Advisory Committee Chair should be consulted to determine whether the student will be permitted to bring notes to consult during the oral exam; however, even if permitted, excessive consultation of notes will indicate to the committee that the student is not sufficiently prepared and may result in a failed exam. The student should keep in mind that the purpose of the comprehensive exam is to determine whether the student possesses adequate knowledge of the claimed area of expertise and can articulate answers in a professional manner and prepare accordingly. The student’s Chair should be consulted for additional advice on preparation for the exam, including set-up of the room.
Preparation & Defense of a Dissertation Proposal

These policies govern the preparation and defense of a dissertation proposal, which is required by both the Graduate College and the Environmental Science Graduate Program for admission to doctoral candidacy. The dissertation proposal is a student-generated prospectus for the conduct of a doctoral research project that will culminate in a dissertation. The ESGP program is an interdisciplinary program and thus the students’ research efforts are expected to address an environmental problem from multiple perspectives, which may include a social and/or economic perspective.

All doctoral students must submit a written proposal and defend the dissertation proposal before their committee. All committee members must participate in the proposal defense. The Research Advisor is responsible for the scheduling and conduct of the dissertation proposal defense. The student should work with the Research Advisor to assemble the proposal and prepare for its defense. The student is responsible for submitting the dissertation proposal to all committee members but must seek the approval of the Research Advisor before doing so.

The dissertation proposal serves as a vehicle to provide confidence that the student has thoughtfully and comprehensively prepared a research agenda that is likely to achieve success. The more detail offered at this stage, the more useful will be the committee’s reactions and suggestions. It is important to note that the committee’s approval does not guarantee research success; however, a good proposal will minimize chances of failure.

Timing
Once approved by the Research Advisor, the student must submit the final defensible draft of the proposal to other committee members no later than two weeks before the defense. The student should consider scheduling the proposal defense immediately following the comprehensive exam, but in no case can the proposal be defended before passing the comprehensive exam. The ESGP Program Coordinator should also be notified if there is a need to reserve a room for the defense; additional advance notice is needed if teleconferencing or videoconferencing is necessary.

Format
Table of Contents: Include a table of contents that reflects the anticipated contents of the entire dissertation. This informs the committee about how the student intends to organize the dissertation report. The contents must also include references to compliance documents, such as the approved Institutional Review Board form that is required if research on human subjects is proposed.

Chapter 1. The Research Question: This chapter answers the question, “What problem will this research address and why should anyone care?” It presents the problem that the dissertation will address, refines the problem into a statement of one or more research questions, and presents an argument of why the solution to this problem is important. This chapter need not be a lengthy one; 3-5 pages will often suffice.

Chapter 2. The Literature Review: This chapter answers the question, “What have others done about this problem?” It presents an organized and coherent review of relevant literature that frames the problem, reports on findings reached so far, and points out holes and deficiencies in the literature. This chapter could be quite long (e.g., 20 pages).

Chapter 3. The Research Methodology: This chapter answers the question, “What do I plan to do about the problem?” It presents and defends the student’s proposed data collection and analytic methodologies as well as hypotheses, conceptual frameworks, models, and so on.

The student must also provide a table that includes the major milestones and associated completion dates for the conduct of the research and the preparation and defense of the dissertation. This allows the committee to provide comments on the timeline and to plan their own schedules.

Chapter 4. Anticipated Results: This chapter, which answers the question, “How do I plan to display and interpret results?” will later become the Results chapter of the dissertation. This chapter allows the committee to determine
how well the student has thought through the results that will emanate from the research and how best to present them.

**Defense**

The dissertation proposal defense normally lasts about two hours. The student should dress in business attire and should consult with the Research Advisor for additional suggestions (e.g., scheduling of time and place, modest provision of snacks and beverages, etc.). The defense typically begins with a 30-40 minute professional presentation by the student of the dissertation proposal. The presentation is followed with questions from committee members. Suggestions for improvement are offered. It is important to keep in mind that this defense is not an examination but rather an opportunity to gain reaction from the entire committee and to seek formal approval for the planned research.

The defense will conclude with one of two outcomes:

1. The student may proceed with the planned research after incorporating changes suggested by the committee and in accordance with directions given by the Research Advisor. The student must complete, and committee members sign, an Admission to Doctoral Candidacy form and submit it to the Program Coordinator, who will submit it to the Graduate College. Official admission to candidacy occurs upon signature by the Graduate Dean.

2. The student must substantially revise the proposal and defend the revision before the committee. This outcome is the result of the committee’s judgment that the proposal is not sufficient or complete enough to evaluate satisfactorily. While there is no limit to the number of times that a student can re-defend, the committee can decide that the student is not able to develop an acceptable dissertation proposal and thus recommend that the student not be allowed to continue in the program. If this is the conclusion reached by the committee, the Research Advisor (and Committee Chair, if different) must inform the Program Director by email of their conclusion.

**Final Dissertation Defense**

The defense of the final dissertation will be conducted in similar manner to the proposal defense, following the Best Practices for Theses and Dissertations published by the OSU Graduate College. The ESGP Program Coordinator should be notified at least one week in advance of the scheduled defense so that the public portion of the defense can be announced; additional advance notice is needed if teleconferencing or videoconferencing is necessary.

There are two possible outcomes of a dissertation defense: Pass – Student has satisfactorily completed the final defense and Fail – Student has not satisfactorily completed the final defense. Each member of the Advisory Committee must sign under one of the above statements recommending either a satisfactory or unsatisfactory defense. To be considered a passing dissertation defense, the Research Advisor must vote in the affirmative and no more than one member of the Advisory Committee may cast a dissenting vote on the Oral Defense Results Form. The form must be signed and returned to the Graduate College immediately following the defense, irrespective of the outcome. The result of the dissertation defense does not indicate approval of the dissertation document, but only the oral defense of the student’s work.

If the oral defense is judged inadequate, a re-examination decision will be made by the Advisory Committee in accordance with Graduate College requirements. Generally, only a single re-examination is permissible. Should the Advisory Committee decide that re-examination is not allowed, the student has failed to successfully defend their dissertation and will be discontinued from the program. In such cases, the student may submit a written appeal to their Advisory Committee within 14 days of the defense. If the decision stands, the student may appeal the decision, in writing, to the ESGP Admissions and Retention Committee with 14 days of the Advisory Committee’s ruling. If the decision is not overturned, the student may contact the Graduate College to appeal the program decision.
Thesis/Dissertation Guidelines

All theses and dissertations must follow the uniform Thesis/Dissertation Guidelines provided by the Graduate College at http://gradcollege.okstate.edu/tdg. Model documents and templates are also available from this site. While the traditional dissertation organization provided in the Graduate College template is acceptable, the dissertation may also be comprised of three (or more) journal articles, preceded by a chapter of introduction and followed by a chapter of conclusions. Some style differences may be acceptable if approved by the student's advisory committee and academic discipline. However, the general formatting should match as closely as possible in order to maintain uniformity in all OSU publications.

Deadlines for submitting forms, dissertation, or thesis and for attending the thesis/dissertation review workshop can be found at http://gradcollege.okstate.edu/graduate-college-academic-calendar. Information regarding how to submit the finished thesis/dissertation is available at http://gradcollege.okstate.edu/thesis_FAQ.
Creative Component Guidelines

The Creative Component is an option for the traditional MS degree only upon approval by the student's graduate committee. In that context, a creative component is a scholarly product that the student creates as an alternative to a thesis or report. Examples include films, software, curricula, designs, books and journal articles. As these examples suggest, MS Creative Components are not necessarily in text form; however, written descriptions are required to document the student's work and judge its scholarly value. Students who wish to complete a Creative Component in lieu of a thesis or research report should contact the ESGP department for more information.

The Creative Component for the Professional Science Master’s (PSM) degree is specifically tied to the internship experience; thus, it is industry-focused and consists of a written document which demonstrates the student’s ability to apply environmental science principles in an actual decision-making situation. The Creative Component for the PSM involves the identification of an environmental problem and the presentation of well-researched solutions. The student develops a Creative Component Proposal and submits to their Advisory Committee for approval in advance of their internship semester. Upon completion of the internship, the student presents the Creative Component to their Advisory Committee in both written and oral forms and completes the Creative Component Verification Form.

The following are general guidelines for the preparation of the written report. Students should seek additional details on formatting, content, and evaluation criteria from their advisor.

Format & Style

The Creative Component report is a graduate-level professional document, written in the third person narrative voice, and is expected to use standard English, including accurate spelling and grammar. Students are strongly urged to use the free services available through the OSU Writing Center and OSU-Tulsa Tutoring Services for assistance with the writing process.

The paper’s style should adhere to APA (American Psychological Association, most recent edition) format. The anticipated length is 20-30 pages (double-spaced, 12-point Times New Roman or Arial font with a one-inch margins on all sides), excluding appendices.

Organization & Content of the Creative Component Description

Title Page

Abstract
A brief summary (no more than one page) of the report organization, problem addressed, solution selected, and assessment of solution success.

Acknowledgments (optional)

Table of Contents

List of Tables (if any)

List of Figures (if any)

Chapter 1: Description of the Environmental Problem

- Explain the reason why this report was selected.
- Define and explain the environmental problem that was solved.
- State the importance of the problem.
- Explain why solving this problem is important to the organization and to the larger community.
- List the objectives of the report.
- Describe the general approach used in solving the problem.
- Explain the major outcomes that were to be achieved in the report.
Chapter 2: Description of the Report Arrangement, Methodologies, and Tasks

- Describe the data collection and analysis methodologies that were used in analyzing the problem, identifying and screening potential solutions, evaluating solution candidates, selecting the best solution, and implementing the solution.
- Describe the tasks performed during the report, with associated timelines.

Chapter 3: Presentation and Discussion of the Solution to the Problem

- The presentation of results includes the products of the investigation, analysis, evaluation, or other methods used to solve the problem.
- The text may be augmented with various graphics, including tables, charts, graphs, drawings, photographs, plans, protocols, computer software, etc. The student should consult their advisor on the level of detail that should be included in the report.

Chapter 4: Findings and Conclusions

- Findings are discussions that interpret the results and apply them to solving the problem; conclusions are the student’s discussion about whether the problem was in fact solved.
- This section should defend and justify the solution selected and include an assessment of the solution’s success.

Appendices (if any)

- Manuals, procedures, etc.
Research Report Guidelines

The Research Report is a written document that provides an analysis to address an environmental problem. The student is expected to demonstrate ability to apply environmental science principles in an actual decision-making situation in a manner that is satisfactory to the student's graduate committee. In addition, the research must reflect the interdisciplinary nature of the program by addressing an environmental problem from multiple perspectives, which may include a social and/or economic perspective.

MS students may choose the Research Report option for their research only upon approval by their Advisory Committee. Students choosing the Report option are required to complete 2 hours of ENVR 5000: Thesis. Similar to a thesis, the student will present a Report Proposal to their committee; a signed Report Proposal Form is to be submitted to the ESGP Coordinator to place in the student’s file. The student also defends the final Report findings and conclusions to their committee in an oral presentation. Following this presentation, the Formal Report Approval Form is submitted to the ESGP Coordinator and the Graduate College.

The Research Report must be written as a professional document, using concise and precise vocabulary, correct spelling and grammar, and the third person narrative voice. If the student is not comfortable with professional writing, s/he should seek editorial advice, such as from the OSU Writing Center. Style should follow American Psychological Association (APA, 6th edition); anticipated length is 20-30 pages, excluding appendices.

Organization & Content of the Report

Executive Summary
A brief summary (no more than one page) of the report organization, problem addressed, solution selected, and assessment of solution success.

Acknowledgments
Thank you to those who helped the author.

Table of Contents

List of Tables (if applicable)
List of Figures (if applicable)

Chapter 1: Description of the Environmental Problem
- Explain the reason for the report.
- Define the environmental problem that was solved by this report.
- State the importance of the problem and explain why solving this problem is important to the organization and to the larger community.
- List the objectives of the report.
- Describe the general approach used in solving the problem.
- Explain the major outcomes to be achieved.

Chapter 2: Description of the Report Arrangement, Methodologies, and Tasks
- Describe the data collection and analysis methodologies that were used in analyzing the problem, identifying and screening potential solutions, evaluating solution candidates, selecting the best solution, and implementing the solution.
- Describe the tasks performed during the report, with associated timelines.

Chapter 3: Presentation and Discussion of the Solution to the Problem
- This chapter is the most important part of the report; care should be taken to develop an articulate and convincing discussion.
The presentation of results includes the products of the investigation, analysis, evaluation, or other methods used to solve the problem.

- The text may be augmented with various graphics, including tables, charts, graphs, drawings, photographs, plans, protocols, computer software, etc. The student should consult their research advisor on the level of detail that should be included.

- Findings and Conclusions: Findings are discussions that interpret the results and apply them to solving the problem; conclusions are the student’s discussion about whether the problem was in fact solved. This section should defend and justify the solution selected and include an assessment of the solution’s success.

Appendices
- Manuals, procedures, etc.
## Resources

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Handbook Receipt & Acknowledgement

The Student Handbook contains important information about the Environmental Science Graduate Program (ESGP). Please read the handbook in its entirety before signing below. Retain a copy for your records and submit a signed copy of this page to the ESGP Program Coordinator.

By signing below, I acknowledge that:

- I am aware that the ESGP Student Handbook is available online and hereby accept responsibility for reviewing its contents.
- I understand that the policies and procedures contained in the ESGP Student Handbook will be used during my program of study. I further understand that failure to follow the regulations contained in the handbook may result in consequences.
- I understand that if I have questions or concerns about the Handbook, I will consult with ESGP Program Staff for clarification.
- I understand that the Handbook is meant to be used as a supplement to other official policies and procedures of Oklahoma State University, including those published by the Registrar’s Office and the Graduate College.
- I understand that this Handbook is offered as a guide to departmental policies, not a contract or implied contract, and that the contents of the Student Handbook may change at any time.

________________________________________
Student Signature

________________________________________
Date

________________________________________
Printed Name