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GEOSCIENCES DEPARTMENT

GEOGRAPHY PROGRAM

DEGREES

Master of Science

Master of Arts

Graduate Information Handbook

**College of Science
Oregon State University
Corvallis, Oregon 97331-5506**

Visit the Geosciences Department web site,
www.geo.oregonstate.edu, or the OSU Graduate School
web site, oregonstate.edu/dept/grad_school, for
current department and university information

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SCHEDULES FOR M.S. STUDENTS

A. SCHEDULE FOR GEOGRAPHY M.S. NON-THESIS PROGRAM (Full-time students)

<u>Activity</u>	<u>When</u>
1. Initial advising and selection of first term classes.	Before classes begin
2. Confirm agreement with a major professor.	1st - 2nd term
3. Select two additional committee members and convene to discuss program of coursework and research direction; file graduate program with Graduate School.	1st - 2nd term
4. Prepare research proposal in consultation with major professor.	1st - 3rd term
5. Seek financial support for proposed research.	Ongoing
6. Complete courses on Graduate Program.	4th - 6th term
7. Submit draft of research paper to major professor.	At least <u>one term</u> before oral examination
8. Revise and resubmit research paper based on major professor's comments.	At least <u>two weeks</u> before oral examination
9. When approved by major professor, submit one bound copy to the Geosciences office and one electronic PDF copy to ScholarsArchive.	At least <u>one week</u> before oral examination
10. Oral examination.	4th term or later, but <u>only</u> after research paper copies are delivered to Geosciences Office and ScholarsArchive

**B. SCHEDULE FOR GEOGRAPHY M.S. THESIS PROGRAM
(Full-time students)**

<u>Activity</u>	<u>When</u>
1. Initial advising and selection of first term classes.	Before classes begin
2. Confirm agreement with a major professor.	1st - 2nd term
3. Select two additional committee members and arrange for a Graduate Representative through the Grad School; convene committee to discuss program of coursework and research direction; file graduate program with Graduate School.	1st - 2nd term
4. Prepare research proposal in consultation with major professor; after approval, circulate proposal to all committee members; provide a signed copy to Geography Program Director.	1st - 3rd term
5. Seek financial support for proposed research.	Ongoing
6. Complete courses on Graduate Program.	4th - 6th term
7. Submit draft of thesis to major professor. Revise as necessary.	At least <u>one term</u> before oral examination
8. Submit copies of complete thesis to entire committee.	More than <u>one week</u> before oral examination date
9. Submit pretext pages of thesis to Graduate School for editing.	When scheduling final defense.
10. Oral examination.	4th term or later
11. Convey two unbound final copies to the Graduate School, one electronic PDF copy to ScholarsArchive, and one bound copy to the Geosciences office.	<u>Within 6 weeks of oral examination</u>

GEOSCIENCES - GEOGRAPHY M.A./M.S. DEGREE PROGRAMS

I. INTRODUCTION

This guide was developed to provide information on graduate study for Geography Master's degree students at Oregon State University. It consolidates information for students entering a degree program in 2005 or later. Students are encouraged to provide suggestions for the improvement of this guide by contacting the Program Director or Joanne VanGeest in the Geosciences Department. Please refer to the OSU Graduate School web site (oregonstate.edu/dept/grad_school/) for the **Graduate School Guide to Success**, as well as for the most important Graduate School regulations.

II. GRADUATE PROGRAM REQUIREMENTS

A. Responsibilities for Completing Graduate Program

The student should assume the major responsibility for his/her graduate program, follow department and university requirements, meet all deadlines, and initiate all steps involved in obtaining the degree. The student should meet regularly with the major professor to discuss progress or difficulties in research, course work or other matters, and, if experiencing serious difficulties with the major professor, discuss the matter with the Director of the Geography Program.

The major professor should 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 other committee members, encourage active participation in departmental seminars, regional and national scientific meetings, and ensure that research, teaching and extended education efforts include advisee students when possible.

Members of the student's graduate committee 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.

Members of the Departmental Graduate Committee are involved in admission of all graduate students, in the review of graduate student progress, and in graduate student matters determined by the Department Chair or faculty.

The Department Chair ensures that the graduate policy is implemented and department standards are maintained, assists in the solution of major problems that might arise during a student's program, and as resources and opportunities permit, allocates office and research facilities for graduate thesis research. For Geography students, the Director of the Geography Program usually acts for the Chair in matters relating to the Geography Program.

B. Major Professor

Students admitted as Regular Graduate Students will normally have a major professor who previously agreed to supervise the student's work. The Geography Program Director will act as a temporary advisor to graduate students admitted without a major professor and suggest appropriate supervisory faculty for a student's interest.

It is the responsibility of the student to seek acceptance by a member of the graduate 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 Geography Program Director.

C. Student's Graduate Committee

The makeup of graduate committees is governed by the policies of the Graduate School, the Geosciences Department, and the Geography Program. The **minimum** committee sizes are as follows:

<u>Degree</u>	<u>Major Prof.</u>	<u>Dept. Rep.</u>	<u>External or Minor Rep.</u>	<u>Graduate Council Rep.</u>	<u>Minimum Total</u>
MS/MA (non-thesis)	1	1	1	0	3
MS/MA (thesis)	1	1	1	1	4

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

1. All committee members must be Graduate Faculty. Adjunct members from other universities or appropriate organizations may also serve if approved by the thesis committee 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 must be regular Geosciences faculty**, as distinguished from courtesy faculty. The Geosciences Department Graduate Faculty listing can be obtained from the Geosciences Department. **Note that a Geosciences faculty member is NOT allowed by the Graduate School to serve as both Dept. Rep. and Minor Professor.**

The Major Professor assumes principal responsibility for directing research activities. When the Major Professor is on a courtesy faculty appointment, a member of the Geosciences regular faculty must serve as co-chairperson of the thesis committee and both must sign the approved thesis. Before graduate program

forms (which must be signed by the department chairperson) are submitted to the Graduate School, the Geography Program Director may review thesis committee membership and, in consultation with the graduate committee, call for changes in composition of the committee.

If the student chooses an optional minor, the Minor Professor must be from outside the Geography Program unless the minor is in an Integrated Minor entirely within geography (e.g., Physical Geography or Resource Geography). Graduate School rules require students to take at least one course from the Minor Professor's department.

The student's committee for the Master's degree consists of a minimum of three graduate faculty members; the major professor, the departmental representative (a faculty member with some experience in the general area of the student's research), and an external or minor representative. The external or minor representative ordinarily serves only at the final examination, but may be asked by the major professor to participate in the thesis review procedure if he/she is closely involved in the research. In the thesis option, a Graduate Council Representative is chosen from a list provided by the Graduate School, and is a full voting member of the committee who attends all meetings, exams, and the final thesis defense. In the non-thesis option, there is no Graduate School representative on the committee.

D. Grade Requirement

A grade point average of 3.00 (a B average) is required for all courses taken as a graduate student (even if they are undergraduate courses), and for courses included in the graduate program. **Neither grades below C nor S/U grades are accepted on a graduate program.**

E. Program Requirements

Admission to the Graduate Program in Geography is open to applicants with a Bachelor's degree and strong academic credentials from many different disciplines. Requirements for the M.S. degree are tailored to reflect the diversity of backgrounds of incoming students and to assure that everyone exits the program with a common core of geographic knowledge beyond their particular specialization. This is accomplished through the use of **background requirements, exit requirements, and program requirements (see Master's Degree checklist)**. Background and exit requirements are determined by an audit of the student records prior to first term enrollment. Program requirements include a set of core classes and additional classes selected in consultation with the students' supervisory committee. Students and advisors should refer to the audit report and the Master's degree checklist in developing a plan of study.

F. **Professional Experiences**

As a part of the program requirements, every graduate student is expected to include in his/her activities some experience of a professional nature. For the purposes of geography graduate degrees, each student should include at least two of the following in their work plan before completion of a degree:

1. Preparation of a research proposal
2. Presentation of research results in a professional context like:
 - a. Professional meeting
 - b. Internship report to clients
 - c. A seminar open to the public (required for thesis students)
3. Preparation of a competitive grant proposal

G. **Study Program Filing and Meeting**

A Master's Program (list of proposed courses) must be filed by all graduate students. The MS Program must consist of a minimum of 50% graduate-level stand-alone courses (not 400/500 “slash” courses) for new programs filed Fall Term 2005 or later. The Program form is available on the Graduate School web site or from the Geosciences office.

Program meetings and preliminary and final examinations may be held during any period when school is in session. This excludes the periods between the regularly scheduled quarters and during official vacation periods. Students should be aware that most faculty are on appointment for only nine months a year, and are unlikely to be available during the three month summer period.

It is the responsibility of each student to arrange meeting and exam times and places through the Geosciences Office, notify the Graduate School of scheduled exams, and remind each committee member of the scheduled meeting or exam. At the time you schedule your orals with the Graduate School, you should also apply for graduation if you have not already done so.

1. 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 credits reserved as an undergraduate student and hours earned as a post baccalaureate, graduate non-degree seeking, graduate special student or classified graduate student. A maximum of 15 hours of graduate coursework may be transferred into a 45-hour program. Thirty (30) hours of coursework taken at OSU after admission into a graduate program must appear on a MS program.

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 major and minor professors and is signed by the major and minor professors and the chairman of the academic unit (or Director of the Geography Program for geography grad students) before filing with the Graduate School. The graduate program of each candidate should include a substantial amount of work with at least four faculty members offering graduate instruction.

2. Changes in the program may be made by submitting a Petition for Change in Graduate Program form, available from the Geosciences Office or Graduate School. It is wise to file one "change" form near the end of the student's tenure so repeated filings are not necessary.
3. Conduct of meeting. The major professor shall chair the program meeting and the examination portion of the preliminary and final oral meetings. The Graduate Council representative shall chair the portion of meetings that involve the evaluation of the student's performance on a thesis option oral exam.

H. Research Requirements for the M.S. Degree in Geography

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 Geography Program allows students two alternatives to demonstrate their research competence. Students must either complete a research paper or a thesis. The decision on which option is most appropriate to a student's program is made jointly by the student and the major professor (see Comparison of M.S. Thesis vs. Project table below).

1. The Research Paper (*GEO 501, 3 credits*)

This is part of a program requiring a minimum of 48 credit hours. Students should enroll in GEO 501 during the final term of residency. Early consideration of the problem, however, is recommended. Some students use ideas and materials from other courses in developing background for their research papers. Students should enroll for GEO 503 (Thesis) to maintain full time status while reducing course load to devote energy to research, even if doing a research paper. Thesis hours are not graded, nor are they listed on the program of non-thesis students. In fact, non-thesis students should strongly consider taking **GEO 510, Internship**, in order to help them develop a viable research project and paper.

The research paper option is designed to expose students to research through a process that is more structured and less open ended than the thesis option. As such, it can be done within one term if a student is well

organized. Students often take longer to complete the process. The research paper, limited to 25 pages in length, is done under the guidance of the major professor, and will usually proceed through these three steps:

- a. After consultation with the major professor, the student prepares a proposal which includes a statement of the problem and the research design. (Section V includes examples. A much wider range of alternatives can be found by using a web search engine and the key words Research Proposal Format.)
- b. After obtaining approval of the proposal, the student carries out the research and prepares a finished draft of a paper according to "A Guide for the Preparation of Research Papers" available from the Geosciences Office and Geography program website. The major professor will provide at least one critical review of the paper in draft form.
- c. The student will prepare a final copy of the research paper. This copy will be awarded a letter grade by the major professor. The grade must be a "C" or better in order to schedule the oral examination. **Only 3 credits of GEO 501 will receive an actual grade. Beginning during the 2006-2007 academic year, any additional research credits (and any other courses) which receive an "I" (incomplete), and if not changed to a grade within one year, the "I" will revert to an "F" grade on your transcript.**

Oral examinations are scheduled only after one bound copy of the research paper has been deposited with the Geosciences Office, and one electronic PDF (portable document format) copy has been submitted to the OSU Scholars Archive). The bound and electronic copies must be exactly the same! See oregonstate.edu/dept/grad_school/current/thesis.html for more information on electronic submittal of the research paper. A letter grade is assigned after the copies are deposited with the department. There is no formal defense of the paper although committee members may choose to use the paper as a stimulus for questions. The oral examination will focus on coursework from the graduate program.

2. The Master's Thesis (*GEO 503, 6 credits*)

This is normally a more substantial commitment to research than the research paper, requiring a minimum of 45 credits. Its length is not limited, and the process of research, writing, and defense often continues over several terms.

The thesis option differs from the research paper option in several ways including:

- a. the requirement that the work produced is a substantial original contribution to the body of knowledge in the student's field;
- b. supervision of the thesis research 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. A “publishable papers” (manuscript) option is one way of meeting thesis requirements. The M.S. 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, is in the format and length required for submission to that journal, and is deemed publishable by the student's graduate committee. The papers option for the M.S. thesis shall include an introduction and literature review that ties the papers together into a common theme, all of which shall be bound together and submitted to the department as a thesis. The student's graduate committee and major professor must agree to the option before the student proceeds; and
- d. 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. Additional copies of the thesis are distributed by the student to members of the examining committee.

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 major professor's expectation for a defensible document. When the major professor is satisfied with the product, a defense is scheduled. 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 time for revisions after the thesis defense. If more than six weeks elapse, a re-examination of the student may be required.

The oral defense will focus on the thesis, although questions pertaining to coursework are allowed. After a successful defense, one revised, bound copy of the thesis is provided to the Geosciences Office, two revised, unbound copies are delivered to the Graduate School to be put on permanent deposit in the university library, and one electronic PDF

(portable document format) copy is submitted to the OSU Scholars Archive). See oregonstate.edu/dept/grad_school/current/thesis.html for more information on electronic submittal of the thesis.

3. Comparison of M.S. Thesis vs. Project

Julia Jones – February 2004

The most important decisions an M.S. student makes during his/her program are to choose an advisor, a set of courses, and a research topic. The research topic must be described in a written document, which can take the form of either a thesis or a project. The advisor and student decide which format -- thesis or project -- is best suited for a given MS student's research. Many factors are involved, including the nature of the research topic, the student's circumstances, time frame and career plans, the advisor's time availability, level of interest and expertise in the topic, and the availability of funding. The thesis is better suited for some students, and the project is better suited for others. Please consider the facts in the table below when making your decision.

	Thesis	Research Project
Form	Up to 75 or 100 pp.; entire document must be formatted according to detailed Graduate School requirements	25 pp. max; format is choice of student and advisor
Permanent record	Two unbound copies of the final thesis are submitted to the graduate school; one bound copy, single-sided original submitted to the department, one copy submitted to ScholarsArchive	One bound single-sided copy submitted to the department, one copy to ScholarsArchive
Content	Original work by the student, including original questions, data analysis, and writing; may involve primary data collection by the student	Original work by the student, including original questions, data analysis, and writing; often does not involve primary data collection by the student
Funding	Student typically supported by research funding for one or more quarters of data collection AND one or more quarters of data analysis and writing. Funding may be from research grant obtained by advisor or student job with an agency	Student should be able to complete data analysis and writing during a summer or an academic quarter while supported by a non-project source of funding, such as a summer job or TA
Committee structure	Committee contains advisor, 2 additional committee members, and graduate representative	Committee contains advisor and 2 additional committee members
Editing and feedback	Multiple drafts of thesis are reviewed by advisor; committee members may (but may decline to) review parts	Draft of paper is reviewed by advisor one time
Assessment/grading	All committee members review the final draft and provide comments or changes at the defense	Advisor reads final draft and assigns a letter grade. Grade must be B or better for MS degree

Role in MS defense	All MS students give an oral presentation open to the public. After the presentation a thesis student is examined by the MS committee, primarily on the thesis but also on related course work	All MS students give an oral presentation open to the public. After the presentation a project student is examined by the MS committee, primarily on course work but also on the project
Likelihood of Publication	There is little difference in the likelihood of publication of an MS thesis compared to an MS project, based on experience of the OSU Geography program. A publication from the MS is principally useful to the student who intends to continue in graduate school, or whose job requires publication. Publication of an MS thesis or paper may also benefit advisors and committee members who are co-authors, particularly when the research makes a contribution in their area of expertise. Publication of a thesis depends mostly on the efforts of the authors, including the student and his/her advisor and committee members. The process can take several years after the MS defense.	
Work required to publish	About 25% of Geography MS theses have been published. Refinements of both formatting (length, organization) and content (ideas, exposition) are required to convert a research paper (thesis or project) into a submittable manuscript. Because a submittable manuscript is generally short (25-35 pages), a thesis typically has to be edited down by about 2/3 before it can be submitted. However, because it has been edited more, the ideas may be more mature.	About 5% of Geography projects have been published. Refinements of both formatting (length, organization) and content (ideas, exposition) are required to convert a research paper (thesis or project) into a submittable manuscript. Because a submittable manuscript is generally short (25-35 pages), a project may be suitable for submission in terms of length. However, because it has been edited less, the ideas may require more thinking and refinement.
Example of publication	Wemple, B.C., J.A. Jones and G.E. Grant. 1996. Hydrologic integration of forest roads with stream networks in two forested basins in the western Cascades of Oregon. <i>Water Resources Bulletin</i> . 32(6):1195-1207.	Rustigian, H.L., M.V. Santelmann, and N.H. Schumaker. 2003. Assessing the potential impacts of alternative landscape designs on amphibian population dynamics. <i>Landscape Ecology</i> , 18, 65-81.
Eligibility for PhD	Admission to a PhD program depends on the student's motivation, finding a good potential PhD advisor, strong letters of reference (including from MS advisor and committee members), and evidence of the student's ability to conduct an independent, original research project. Both the thesis and the project provide evidence of this ability.	
Job qualifications	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.	

I. Public Seminars

Each graduate student on a thesis program is expected to present a seminar related to the thesis subject. The presentation could be made at a regularly scheduled departmental seminar, at the time of the examination, or at a special meeting.

J. Assistantships

University regulations require all students with an assistantship to **register for a minimum of 12 hours each term while on a TA or RA.** Graduate Assistants may register for a maximum of 16 credits, but are advised to confer with their major professor or program director when registering for over 12 credits to avoid a potential overload. Students on an assistantship can maintain their full time status, and avoid overloading themselves with coursework, by signing up for GEO 503 Thesis (1-16 hours) to "top up" their credits to the 12-16-credit level.

Since GEO 503 credits get an R (research continuing) grade, they are not calculated in the grade point average. Thesis students can list only 6 GEO 503 credits on their graduate program, but the only GEO 503 enrollment limit is 16 per term.

"As a condition of their academic appointments, graduate teaching and research assistants are required to register for three credits above the minimum full-time load (i.e., a minimum of 12 credits) each term of the appointment during the academic year (fall, winter, and spring.) During summer session, a minimum registration of 9 credits is required for graduate assistants. *Audit registrations and enrollment in OSU Extended Campus courses may not be used to satisfy enrollment requirements for graduate assistant salary/stipend, tuition remission, or health insurance benefits.*" (excerpt from the Grad School website)

K. 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 or department resources (e.g. facilities, equipment, computing or library services, or faculty or staff time, including holding exams) until their degree is granted or status as a graduate student is terminated, unless on authorized leave, effective Fall Term 2002. *

* See Continuous Graduate Enrollment Policy on the Graduate School web

site, or check with the Geosciences Department office for entire Executive Summary regarding continuous enrollment and leave of absence requirements.

L. Thesis vs. Research Enrollment for International Students

It is especially important that international students register for thesis credits (GEO 503) instead of research credits (GEO 501) beyond those required on their degree program (three GEO 501 credits are required on the research-paper option, six for thesis option). Incomplete grades will be assigned to research credits taken beyond those required, and beginning sometime during the 2006-2007 academic year, any "I" grades which have not been removed within one academic year will revert to an "F" grade on student transcripts. Grades of "I" (incomplete) and "F" can potentially lead to complications with the INS. Thesis credits are not assigned a letter grade.

Students on F-1 or J-1 visas must be enrolled for and complete a minimum of 9 credits each term during the academic year to satisfy immigration requirements. All graduate students on an assistantship (GTA or GRA) need to maintain at least 12 state-supported credits. Audit or OSU Extended Campus courses do not count toward full-time enrollment for OSU graduate students.

Students must receive written approval from International Student and Faculty Services prior to registering for less than a full-course of study or dropping below a full-course of study. One vacation period is allowed during the academic year, usually taken summer term. See Registration Requirements for Graduate International Students on their website <http://oregonstate.edu/international/> .

During the final phase of your degree, you may petition to register for fewer than 9 credit hours if you have completed all required coursework and all credits listed on your specific Graduate Program of Study. If approved, you will need to register for a minimum of 3 credits. Check with International Programs in 444 Snell Hall, OSU campus, 541-737-3006, for more information.

OREGON STATE UNIVERSITY- GEOGRAPHY PROGRAM

III. CHECKLIST FOR GEOGRAPHY MASTER'S DEGREE

1. Background Requirements. Does the audit of this student's record specify the need to take any of the following minimum background coursework?

- Physical Geography (GEO 201)
- Statistics (ST 351)
- Natural Resources/Environmental Conservation (GEO 300)
- Cartography (GEO 360)

If the audit specifies any of these courses, they are to be taken for undergraduate credit early in the program. They may not be audited, or taken for graduate credit. They must be taken on a graded basis (not S/U or P/N).

2. Exit Requirements. Does the audit of this student's record specify the need to take any of the following exit requirements coursework?

- Field work (GEO 548 562, 595, or advisor approved substitute)
- Physical Geography (GEO 531, 532, 539, 546, 582, 583, or advisor approved substitute)
- Resource Geography (GEO 520, 521, 523, 524, 525, 526, 529, 551, 552, 553, or advisor approved substitute)
- Remote Sensing/Image Processing (GEO 544, 566, or advisor approved substitute)
- Geographic Information Systems (GEO 565, 580, or advisor approved substitute)
- Statistics (ST 511, or advisor approved substitute, such as GEO 541)

Although students may take undergraduate courses to meet exit requirements, this could inordinately delay completion of the M.S. degree. The courses listed above may be used to simultaneously meet exit requirements and graduate program requirements.

3. Program Requirements. The total program must have at least 45 graduate course hours (48 for non-thesis students). The combination of exit, major, and minor program requirements must list at least 30 graduate hours in geography, including the common set of core classes listed below:

- GEO 501 Research Paper (3 credits) or GEO 503 Thesis (6 credits)
- GEO 507 Seminar: Geographic Research (1 credit) [Repeat 3 times; one must be taken concurrently with GEO 515]
- GEO 515 History and Philosophy of Geography (3 credits)
- GEO 518 Geoscience Communication (3 credits)
- GEO 548 Field Research in Geomorphology & Landscape Ecology (3 credits) (GEO 534 is also highly recommended, but is not required)
- Professional Experiences (2)
 - Research Proposal Presentation Grant Proposal

Every student must complete a major program of study including at least 27 credits. The major areas of study are geographic information science, physical geography, or resource geography. The specific courses selected must meet the approval of the major professor and program director.

A minor program of study is NOT required. However, if a student desires a minor, many are available on the OSU campus, including an integrated minor that combines fields around a student-designated theme (such as physical geography or resource geography). These minors must consist of at least 15 credits. There is also the graduate certificate in geographic information science at 19 credits. The following list is helpful in guiding the selection of geography courses for inclusion in major and minor programs:

Internship

GEO 510 Internship credits (3) may be used in the graduate program when a student has chosen the non-thesis option.

Geographic Information Science

GEO 541+ Spatial Variation in Ecology & Earth Science
 GEO 544 Remote Sensing
 GEO 545 Computer-Assisted Cartography
 GEO 560 Multimedia Cartography
 GEO 565 Geographic Information Systems & Science
 GEO 566 Digital Image Processing
 GEO 569 Topics in Geographic Techniques
 GEO 580+ Advanced GIS Applications in the Geosciences
 GEO 585+ Advanced Remote Sensing & Digital Image Processing

Resource Geography

GEO 520 Geography of Resource Use
 GEO 521 Humans and Their Wildlife Environment
 GEO 522 Reconstructing Historical Landscapes
 GEO 523 Land Use
 GEO 524 Water Resources Geography
 GEO 525 Water Resources Management in the U.S.
 GEO 526 Third-World Resource Development
 GEO 529 Topics in Resource Geography
 GEO 552 Principles and Practices of Rural and Resource Planning
 GEO 559 Topics in Land Use

Physical Geography

GEO 531 Applied Climatology
 GEO 532 Applied Geomorphology
 GEO 534 Introduction to Oregon Geography
 GEO 539 Topics in Physical Geography
 GEO 546+ Advanced Landscape Ecology
 GEO 548+ Field Research in Geomorphology and Landscape Ecology
 GEO 581+ Glacial Geology
 GEO 582+ Geomorphology of Forests and Streams
 GEO 583+ Snow Hydrology
 GEO 593 Topics in Quaternary Geology

+ = 500-level-only course (as are GEO 515 and 518). In other departments, related 500-level-only courses are FOR 558, 561, 564, FS 520, 521, 523, MRM 525, OC 678, ST 565, and CS 549, 553. You may also petition the grad school to accept a 400/500 course as 500-level-only if you include the syllabus of the course with a clear statement therein of learning outcomes for graduate students. **Rev 8/2007**

**DEPARTMENT OF GEOSCIENCES
GEOGRAPHY PROGRAM**

**IV. GUIDELINES FOR GAINING APPROVAL OF THESIS AND
RESEARCH PAPER PROPOSAL TOPICS**

The following procedures have been established to assure that candidates make maximum use of the members of their committee as advisors in the formulation of thesis and dissertation topics and research designs.

1. Identify the problem area. Discuss with major professor and committee members independently.
2. Read to determine existing research on topic.
3. Refine topic. Test problem thrust with major professor, committee members, and other relevant persons.
4. Prepare formal research proposal. (See example formats below.) Consult library proposal preparation references for extended discussion.
5. Test your proposal ideas during independent discussions with major professor and committee members.
6. If doing a thesis, reach agreement with major professor as to the format of the proposed thesis (regular or manuscript option).
7. Provide copies of the approved thesis proposal to members of the committee and to the Geography Program Director.
8. As work progresses, keep in contact with major professor and committee. Submit material for review as drafts are completed.

V. SUGGESTED STRUCTURE FOR A MASTER'S RESEARCH PROPOSAL

In order to facilitate discussion of the student's research plans, the candidate is asked to prepare a research proposal. For M.S. students, the proposal must be presented and discussed in a formal proposal meeting attended by the student's graduate committee. Outlines commonly include the following sections. The lengths listed pertain to double spaced typing and are guidelines, not rigid requirements. Two formats are given below, but major professors may suggest other styles.

RESEARCH PROPOSAL - FORMAT #1

1. Literature review and statement of problem - 2 to 6 pages;
2. Objectives of the proposed study - 1/4 to 1/2 page;
3. Methods of procedure - 2 to 5 pages, presented systematically for each objective with emphasis on design, sampling methods, and statistical analysis;
4. Significance of the proposed research - 1 to 2 pages;
5. Literature cited;
6. Time table of significant events in the research project (1/2 to 1 page). This should include: (a) when the study or data gathering was or will be initiated; (b) duration of the data gathering (including all field seasons for field projects); (c) when the data will be analyzed; (d) when the thesis will be written; and (e) the expected date for completion of the degree requirements.

RESEARCH PROPOSAL - FORMAT #2

TITLE: This should clearly indicate the type of study proposed.

INTRODUCTION: This should be a several paragraph statement introducing the general subject.

e.g., The controversy over "old growth" is a recent development in the Pacific Northwest. Prior to the early 1980's, environmental activists focused their energies on the creation and expansion of the Wilderness Preservation System. When resistance to additional wilderness areas stiffened, it became clear to many that the wilderness system was likely to leave a large portion of the virgin timber resources unprotected from the threat of harvest. The debate

shifted from wilderness preservation to "old growth" preservation. In support of the claims of environmentalists, scientific research produced evidence which seemed to justify the setting aside of "old growth" as a species protection measure.

In particular, it was demonstrated that the Northern Spotted Owl showed a particular affinity to old growth stands. As a result of this, the owl has been designated as an indicator species pointing to the viability of old growth communities. Etc., etc.

JUSTIFICATION: This is the place where the focal problem area is identified. It should answer the general question: "Where do we need increased understanding?"

e.g. Since the fate of old growth has been tied so closely to the fate of the spotted owl, it is important that the linkage between the two is based on the best science available. The questions recently raised by owl sightings in second growth timber are disturbing to outside observers since they indicate that old growth may not be essential to the survival of the owls. This research is designed to reexamine the linkage between old growth and owls.

OBJECTIVES: The objectives bring the proposal down to the specific things you intend to accomplish with the proposed research. They should be short statements that are clear and to the point.

- e.g. 1. To construct a history of the emergence of old growth as a resource controversy in the Pacific Northwest.
2. To identify.....
 3. To determine.....
 4. To estimate.....
 5. To construct.....
 6. To develop.....
 7. To test.....

PROCEDURES: Each objective identified above should be linked to the strategy you intend to use in pursuing the objective.

Objective 1:

e.g. The published literature will be searched using a system described by

Bigfoot (1901) to identify key actors in the scientific, environmental, and governmental communities. As the search proceeds, a cumulative contacts graph will be constructed as described by Susie (1875). When the frequency of new names per article searched approaches the asymptotic limit, the name search will be stopped.

Using the names generated from the published literature, a sample population of names will be drawn using the stratified Wilson method as described by Wilson (1987).

The individuals in the sampled population will be interviewed.....

Objective 2: Etc., etc.

Objective 3: Etc., etc.

SUMMARY STATEMENT: A few paragraphs that bring together the expected significance of the findings is a desirable way to bring to the reader a sense of the importance of the proposed work. If you don't know why it is important, will anyone else?

TIME LINE FOR WORK: This should give the schedule of work you propose to undertake. Many students have little concept of the time involved in doing research. The time line helps me judge if the research work can be completed on schedule.

If you systematically organize your proposal in this fashion, then it is easy to approve parts of it and to identify parts that are in need of further work.

DEPARTMENT OF GEOSCIENCES - GEOGRAPHY PROGRAM**APPENDIX. GRADUATE SCHOOL FORMS AND HELPFUL TIPS**

Graduate Program and all other necessary forms are available on the web at oregonstate.edu/dept/grad_school/ and click on “Graduate Forms”

The OSU Graduate School Survival Guide, a step-by-step guide to processing through your doctoral degree can be found at oregonstate.edu/Dept/grad_school/current/success.html

OSU Graduate diploma and commencement deadlines: oregonstate.edu/Dept/grad_school/current/deadlines.html

Tips from Bruce Rettig, former Associate Dean of the Graduate School:

Please let me alert you to some problems that your students may be able to avoid.

Effective Fall 2005, all graduate student programs of study submitted to the Graduate School must consist of, at a minimum, 50% graduate stand-alone courses.

First, after a slash (4XX/5XX) course has been completed and the grades assigned, I do not approve petitions to drop a 4XX course and add the related 5XX course. But, I will endorse petitions to the Academic Requirements Committee to drop the 4XX and add the 5XX during the term. Please ask your instructors of slash courses to confirm that all students in the 4XX course wish to apply the course only to undergraduate degree requirements. If they wish to use the course at some point on a graduate program of study, they should be enrolled in the 5XX course (carrying out the instructor’s designed strategies to help the students meet the graduate level learning objectives).

Second, students often do not understand the concept of billable hours. The deadline for dropping a course has passed. If a student petitions to drop a course now, it will be treated as a withdrawal. Courses recorded as audits or withdrawals are billable hours. If your students withdraw from a course, advise them to be very careful about how many credits they add. For example, consider a student enrolled for 6 credits of (two) courses plus 10 credits of thesis research for a total enrollment of 16 credits. If the student chooses to withdraw from one of the courses, the billable hours remain 16 (13 credits of registered courses plus the 3 credits of W). If the student then adds three credits, the registration returns to 16 credits, but the student is billed for 19 credits. This is beyond the 9-16 credit plateau with one tuition rate and will result in additional billing. How much they will be responsible for (remember that tuition remission only covers 12-16 credits) varies during the term, but there will be some cost to exceeding 16 billable hours.

Please share this information with your advisors so they may proceed cautiously in advising students about strategies to maintain registration during a term.

Information that applies to both master's and doctoral degrees can be found at

<http://catalog.oregonstate.edu/ChapterDetail.aspx?key=38>

The Graduate School will be pleased to answer questions on these or any other degree requirements. Please call (541) 737-4881, stop by the Graduate School office on the third floor of Kerr Administration Building, or email us 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
- ◆ Online writing lab for assessment of writing problems (24-48 hour turnaround)

Waldo 123

<http://cwl.oregonstate.edu/>

737-5640

The OSU Academic Success Center

Assistance with:

- ◆ Goal setting
- ◆ Study skills
- ◆ Listening habits
- ◆ Time management
- ◆ Wellness

101 Waldo Hall

<http://success.oregonstate.edu/>

737-2272

International Programs, International Student & Faculty Services

Information for students on F-1 or J-1 visa

444 Snell Hall

<http://oregonstate.edu/international/>

737-3006

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