

*Handbook to  
Graduate Study in*

**GEOGRAPHY**

*& The*

**ENVIRONMENT**

*at the  
University of Denver*

*Academic Year 2018-2019*



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## **INTRODUCTION**

### ***WELCOME TO DU'S DEPARTMENT OF GEOGRAPHY & THE ENVIRONMENT!***

The department faculty applauds your desire and commitment to furthering your knowledge and expertise in the field of Geography. We infer that your past studies or professional experiences have demonstrated the value of this pursuit. We share your enthusiasm.

The graduate program of the Department of Geography and the Environment at the University of Denver includes a relatively small number of carefully chosen students. We admit only those whom we believe can successfully complete the program and whose interests are similar to our own. Consequently, you will find yourself surrounded by intelligent and motivated colleagues. You will develop friendships among the students and faculty alike that will last a lifetime. This fringe benefit of graduate education should not be underestimated.

Periodically, we review the content of our graduate programs to ensure that they meet the needs and expectations of our students. The program requirements presented in this handbook reflect our most recent collective judgment concerning the best method of meeting your needs and expectations. You will find flexibility within a basic structure so that you, together with your advisor, can tailor your particular program to best suit your personal and professional objectives. Regardless of the route that you select, you will find your program challenging. This is how it should be if you are to develop and refine your knowledge of geography. Upon completion of your program and graduation, you will be truly proud of your accomplishment, and so will we.

### ***A NOTE ON THE "POST-GRADUATE TRANSITION"***

As an undergraduate, your role was largely a passive one – you studied the material covered in the syllabus, took the exams, and completed the assignments, on which basis the professor measured your progress and determined a grade. As a graduate student you will find the expectations to be quite different. You have entered the ranks of professional geographers, and as such you are no longer in the business of merely absorbing knowledge; you are expected to create it as well. In addition to the requisite coursework, you will engage in independent and original research on a topic of your choosing. The faculty will not select research questions, techniques, or approaches for you, but rather will provide advice and comment from the perspective of experience. Furthermore, the initiative at all stages will need to come from you. Making this transition is perhaps the most difficult – but most rewarding – part of being a graduate student.

As you undertake this process, a critical relationship will be the one you develop with your advisor. Your choice of advisor should be well-considered and based on such factors as research interests, expertise, background and training, and current commitments. Think of your advisor not as your boss, editor, or probation officer, but as a skilled guide who can facilitate your successful passage through a degree program, provided you do your part to meet that challenge.

### ***COLLOQUIUM***

Department faculty make a great effort to bring in scholars from around the country and world to engage us in the latest developments in the many areas of geography. We do this as part of our scholarship and because we never tire of learning. Presentations by these scholars normally take place on Thursday afternoons from 4 to 5 pm. After the lectures, we engage our visitors in social events. As part of your professionalization and participation in the department, we expect you to attend lectures and post-lecture discussions. So, please ensure you leave space in your calendars for all of these lectures.

## **GEOGRAPHY AT THE UNIVERSITY OF DENVER**

The Department of Geography and the Environment at the University of Denver marked its 70<sup>th</sup> anniversary in 2015, and has been offering graduate degrees for the better part of that time period. The department currently offers MA and Ph.D. degrees in Geography, an MS degree in Geographic Information Science (GISc), and has recently added an online MS degree in GISc. With a full-time faculty of seventeen, we have strengths in several substantive areas and maintain a good balance among human geography, physical geography, human-environment interaction, and geographic information science. The on-campus graduate population typically ranges from 35 to 40 students, roughly two-thirds of whom are in residence at any given time. Another 50 graduate students are engaged in the department's MS GISc online degree program. Our modest size affords many advantages – small classes, personal attention, excellent financial aid opportunities, job placement assistance, and the chance to develop rewarding relationships with faculty, staff, and other students. The department also boasts outstanding facilities and resources, with newly renovated and updated offices, labs, and classroom space, and offers numerous opportunities for field training through a range of trips and courses, both in the U.S. and abroad.

Graduates from this department have enjoyed considerable success in securing employment related to their training and interests. Recent alumni with human geography emphases are currently working for state and local planning agencies, developers, consulting firms, and private industries in Colorado and elsewhere. Those with interest in physical geography have found employment in federal and state agencies, environmental consulting firms, and private enterprises. Alumni completing the MS GISc degree are now employed by planning and environmental consultants and GIS companies. In addition, numerous graduates of the doctoral program hold faculty teaching positions with colleges and universities around the country.

## **FACILITIES AND RESOURCES**

### ***DEPARTMENTAL***

The Department of Geography and the Environment is located in the Keck Geosciences Center, occupying the ground level, first, and second floors of Boettcher Science Center West. This facility contains faculty, staff, and graduate student offices, the David B. Longbrake GIS laboratories, a geospatial visualization lab, a remote sensing lab, a conference room, a coffee room, and a library. The department has additional space in Olin Hall, including a pollen lab, a USDA-certified soils lab, an instructional lab, and the Hoyt minerals collection. The department also has access to field vehicles – four 12-passenger vans, and an eight-passenger Chevrolet Suburban – as well as a wide variety of field equipment. Graduate student mailboxes are located in the main office on the first floor, as are teaching supplies, audio-visual equipment, a photocopier, and a fax machine.

### ***UNIVERSITY-WIDE***

Located about a one-hour drive west of Denver, the University maintains a field research facility on Mount Evans. The Mount Evans Field Station, built in the Arapaho National Forest at an elevation of 10,600 ft., consists of a large dormitory with kitchen facilities, separate laboratory facilities, and a weather station.

The University library system contains over 2.7 million items housed in four libraries. A computerized catalog listing the holdings of the University of Denver as well as those of other Colorado and national universities and the Denver Public Library is available for use. Students are granted borrowing privileges at all of the cooperating libraries. They also have access to libraries at the United States Geological Survey (USGS) and the National Center for Atmospheric Research (NCAR).

## FACULTY AND STAFF

The Department of Geography and the Environment has an exceptional Faculty who are among the leading experts in their chosen areas of geographic specialization. The entire faculty and staff are committed to providing the best educational environment for students.

The faculty of this department also takes pride in their teaching ability. Each has earned recognition for excellence in their work in the classroom. Several of the full-time faculty have received University awards for distinguished teaching, and one faculty member has received the Distinguished Teaching Achievement Award presented by the National Council for Geographic Education.

### FACULTY

**E. ERIC BOSCHMANN** - Ph.D., The Ohio State University, 2008. *Associate Professor*. Urban Geography, Economic Geography, Commuting, Mixed Methods, GIS.

**J. MICHAEL DANIELS** - Ph.D., University of Wisconsin-Madison, 2002. *Associate Professor*. Geomorphology, Environmental Change, Soils, Hydrology.

**ANDREW R. GOETZ** - Ph.D., The Ohio State University, 1987. *Professor*. Transportation, Urban Geography and Planning, Economic Geography.

**HILLARY HAMANN** - Ph.D., University of Colorado-Boulder, 2002. *Teaching Professor*. Physical Geography, Water Resources, Conservation.

**HELEN HAZEN** – Ph.D., University of Minnesota- Twin Cities, 2006. *Teaching Associate Professor*. Environmental Conservation, Human-Environment Interactions, Health Geography

**STEVEN R. HICK** - M.A., University of Missouri, 1983. *Professor of the Practice and Director of MS-GISc Online Program & Geographic Technology Applications Center (GTAC) Director*. Geographic Information Science (GISc), Project Management, Cartography, Criminology.

**MICHAEL J. KEABLES** - Ph.D., University of Wisconsin-Madison, 1986. *Associate Professor and Chair*. Climatology, Water Resources, Climate Variability.

**MICHAEL W. KERWIN** - Ph.D., University of Colorado, 2002. *Associate Professor and Director Environmental Science Program*. Quaternary Geology, Dendroclimatology.

**KRISTOPHER KUZERA** - Ph.D., San Diego State University, University of California, Santa Barbara Joint Doctoral Program, 2011. *Teaching Assistant Professor and Internship Director*. Geographic Information Science (GISc), Remote Sensing, Health/Medical Geography, Climate and Climate Change, Cartography.

**JING LI** – Ph.D., George Mason University, 2012. *Associate Professor*. 3D/4D Geovisualization and Visual Analytics, Spatial Temporal Modeling and Analysis, Web-based Geographic Information Science (GISc), High Performance Geocomputation, Spatial Cloud Computing.

**HANSON NYANTAKYI-FRIMPONG** – Ph.D., The University of Western Ontario, Canada, 2014, *Assistant Professor*. Human-Environment Interactions, Climate Change, Environmental Justice, Africa.

**REBECCA L. POWELL** - Ph.D., University of California-Santa Barbara, 2006. *Associate Professor*. Human-Environment Interaction, Remote Sensing, Statistics, Land Use/Land Cover Change, Geographic Information Science (GISc).

**DONALD G. SULLIVAN** - Ph.D., University of California at Berkeley, 1989, *Associate Professor*. Quaternary Studies, Biogeography, Environmental Change.

**PAUL C. SUTTON** - Ph.D., University of California-Santa Barbara, 1999. *Professor*. Geographic Information Science (GISc), Ecological Economics, Human-Environment Interactions, Population Geography.

**MATTHEW J. TAYLOR** - Ph.D., Arizona State University, 2003. *Professor and Director of Graduate Programs*. Latin American Geography, Political Ecology.

**ERIKA TRIGOSO RUBIO** - Ph.D., University of Oxford, 2010. *Teaching Associate Professor*. Vulnerability and adaptation to climate change, Geographic Information Science (GISc), Latin America.

**GUIMING ZHANG** - Ph.D., University of Wisconsin-Madison, 2018. *Assistant Professor*. Geographic Information Science (GISc), Volunteered Geographic Information (VGI), Geospatial Big Data Analytics, Predictive Mapping, Geocomputing.

#### **ADJUNCT FACULTY**

**G. THOMAS LAVANCHY**-Ph.D., University of Denver, 2015. *Adjunct Professor*. Human-Environment Interactions, Hydrology, Political Ecology, Latin America, Geographic Information Science (GISc), West African Sahel.

**MICHELLE MORAN-TAYLOR** - Ph.D., Arizona State University, 2003. *Adjunct Professor*. Cultural Geography, Cultural Ecology, Human Migration.

**MARTHA A. NAREY** - Ph.D., University of Denver, 1999. *Adjunct Professor*. Environmental Systems.

**SEAN TIERNEY** – Ph.D., University of Denver, 2010. *Adjunct Professor*. Clean Energy, Sustainability, Cities, and Transportation.

#### **EMERITUS FACULTY**

**DAVID B. LONGBRAKE** - Ph.D., University of Iowa, 1972. *Professor Emeritus*. Statistics, Urban Geography, Land Use Planning, Urban and Regional Development, Computer Mapping, GIS, GPS.

**TERRENCE J. TOY** - Ph.D., University of Denver, 1973. *Professor Emeritus*. Geomorphology, Erosion, Reclamation of Disturbed Lands.

#### **STAFF**

**MOLLY M. DUNN** - Administrative Assistant to the Chair.

**WILL KINISTON** - Geography Office Assistant and Graphic Artist

## DEGREE PROGRAMS

The Department of Geography & the Environment offers degree programs at both the master's and doctorate levels.

### ***Ph.D. DEGREE IN GEOGRAPHY***

Areas of emphasis at the doctorate level include: biogeography; climatology; cultural geography; economic geography; geographic information science; geomorphology; global change; human environment interaction; Latin America; population geography; Quaternary studies; transportation geography; and urban geography.

The doctoral degree requires 72-quarter hours of study beyond the master's degree, competency in two research tools, comprehensive exam and a dissertation.

### ***M.A. DEGREE IN GEOGRAPHY***

A Master of Arts degree in Geography requires 45 quarter hours of course work and a research thesis.

Areas of specialization include:

**Physical Geography :** Biogeography, Climatology, Geomorphology, Quaternary Studies, Soils, Hydrology;  
**Human Geography:** Cultural Geography, Economic Geography, Development, Population Geography, Transportation Geography, Urban Geography, Urban and Regional Planning;  
**Human-Environment Interaction:** Global Change, Land Use, Latin America, Africa, Natural Resources, Political Ecology, Sustainability;  
**Geographic Information Science:** Geo-visualization, GIS, Remote Sensing, Spatial Analysis.

### ***M.S. DEGREE IN GEOGRAPHIC INFORMATION SCIENCE (GISc)***

A Master of Science degree in Geographic Information Science (MS-GISc) requires 48 quarter hours of course work and completion of a Capstone project.

The Geography Department faculty recognizes the emerging importance of geographic information science and the importance of integrating advanced study in geographic information systems, remote sensing, and global positioning systems with traditional studies in human and physical geography. The Master of Science degree complements our traditional graduate degree offerings.

### ***M.S. DEGREE IN GEOGRAPHIC INFORMATION SCIENCE (GISc) ONLINE***

The Master of Science online degree in Geographic Information Science (MS-GISc). The same as the on campus version, but this degree is designed to meet the needs of students unable to move to Denver or otherwise participate in a traditional on campus program.

This degree requires 48-quarter hours including satisfactory completion of a Capstone Project.

### ***CERTIFICATE OF ADVANCED STUDY IN GIS***

The University of Denver also offers a 24-credit hour GIS certificate program, through the University College, leading to the Certificate of Advanced Study in GIS. This program was designed by the Department of Geography and the Environment. The GIS certificate program offers working professionals the opportunity to acquire the background information and hands-on expertise necessary to capitalize on this powerful, emerging technology. Credit earned in the certificate program may be applied towards the MS degree as a part of the admission process. MS-GISc prerequisites may also be completed with GIS certificate courses with instructor approval.

### ***DESIGNING YOUR PROGRAM OF STUDY***

The department prides itself in the ability to tailor individual programs to complement the student's interest within a basic framework of practical requirements and departmental emphases. Research projects may be theoretical or applied, and continuous interaction with faculty members is strongly encouraged. Enrichment of the student's program is possible through course work in other University departments and by arrangement of internships with federal, state, and local agencies, in addition to non-governmental organizations in the Denver metropolitan area.



## **LIST OF COURSES**

### **Human Geography Courses**

GEOG 3300: Cultural Geography	GEOG 3470: GIS & Environmental Health Geography
3310: Culture, Nature, Environment	3700: Environment and Development
3320: Global Change - Human Dimensions	3755: Geography of Health
3340: Geographies of Migration	3800: Geography of Colorado
3350: Qualitative Methods in Geography	3825: Geographies of International Devel. in Africa
3400: Urban Landscapes	3830: Natural Resource Analysis and Planning
3410: Urban Applications in GIS	3890: Ecological Economics
3420: Urban & Regional Planning	3930: Cultural Geog Sem: Political Ecology
3425: Urban Sustainability	3940: Urban Geography Seminar
3440: Urban Transportation Planning	4810: Geography of Latin America
3445: Sustainability & Transportation	
3450: Transportation & Mobilities	
3460/4460: Air Transportation and Tourism	
ENVI 3000: Environmental Law	
ENVI 3550: Environmental Issues – Colorado	

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### **Physical Geography Courses**

GEOG 3500: Reconstructing Quaternary Environments	GEOG 3630: Dendroclimatology
3510: Biogeography	3640: Climate Change & Society
3520: Geography of Soils	3710: Environmental Change in Eastern Mediterrane
3550: Topics in Physical Geography	3720: Mountain Environments and Sustainability
3560: Fluvial Geomorphology	3800: Geography of Colorado
3600: Meteorology	3870: Water Resource and Sustainability
3610: Climatology	3910: Geomorphology
	3950: Physical Geography Seminar
	3955: Pollen Analysis Seminar
GEOL 3100: Environmental Geology	
3200: Sedimentology/Stratigraphy	
3520: Erosion Process and Measurement	
3540: Hydrology	

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### **Geographic Information Science Courses**

GEOG 3000: Advanced Geographic Statistics	GEOG 3150: GIS Project Management
3010: Geographic Information Analysis	3200: Remote Sensing
3040: GPS for Resource Mapping	3230: Advanced Remote Sensing
3100/4110: Geospatial Data	3410: Urban Application in GIS
3110: Introduction to GIS Modeling	3701: Topics in Geographic Information Science
3130: Advanced Geographic Information System:	3860: GIS Applications in Natural Resources
3140: GIS Database Design	3920: Remote Sensing Seminar

## **DEGREE PROGRAM REQUIREMENTS**

### ***REQUIREMENTS FOR STUDENTS WITHOUT PRIOR DEGREES IN GEOGRAPHY***

The MA and PhD graduate degree programs in Geography are based upon the assumption that persons starting the program have an adequate background in the discipline. It is therefore necessary that persons without such a background obtain the equivalent knowledge. In such cases, students and their faculty advisor will devise a plan for this acquisition of appropriate background knowledge in Geography. In addition, a student enrolled in the doctoral program is expected to have obtained significant research experience as part of a master's program, and such experience must be obtained before the student will be eligible to pursue the doctoral degree.

#### **Doctoral Program**

##### ***Research experience***

A quality research paper of substantial scope must be completed by any student who has not completed a thesis or substantial research as part of his/her master's degree. The paper is to be completed and evaluated by the appropriate faculty no later than the close of the third quarter of residence in the program. The paper should include a substantive literature review, problem statement, hypotheses, description of the research methods, tests of hypotheses, and conclusions drawn from the analysis. In essence, the paper should be a mini-thesis. No more than 5 quarter hours of credit may be earned in the process of completing the research deficiency.

##### ***Transfer credit from Master's Degree***

The faculty will identify the courses to be accepted in transfer up to a maximum of 45-quarter hours. It is possible, however, that the total credit hours accepted in transfer could be less than 45-quarter hours.

### ***PhD PROGRAM IN GEOGRAPHY***

#### **The Basic Structure**

Your program will consist of formal course work and independent study through which you develop and prepare your independent research, i.e. dissertation. You will work with a faculty advisor and a faculty committee to determine the appropriate course work and nature of the independent study.

##### ***Faculty Advisor***

Soon after beginning your graduate program, you will need to identify a faculty member who will serve as your academic advisor. The advisor should be a full-time tenured or tenure-track faculty member in the Department of Geography and the Environment with a research record and interest appropriate to your proposed research area of specialization. The advisor assists you in developing the program of course work, oversees the dissertation, and keeps the department chair and departmental director of graduate programs informed of your progress. You need to fill out the Advisor Acceptance Form, have it signed by the prospective advisor, and turn it in to the Graduate Program Director (see page 39).

### ***Faculty Committee***

Once you have identified an advisor and a working research topic, you and your advisor should begin to assemble the rest of your faculty committee. The PhD candidate's dissertation committee is comprised of at least four members: an advisor and three other committee members. All members of the committee must be full-time appointed faculty at DU and have research records appropriate to the student's area of specialization. Faculty from appropriately related units who hold the terminal degree in their field may serve on the committee as long as the candidate's graduate unit has the majority representation and a 2/3 majority of the committee hold the earned doctorate.

The committee approves the student's program of study no later than the beginning of the third quarter of the student's program.

Students should refer to the Graduate Policies and Procedures Manual from the Office of Graduate Education at <http://www.du.edu/media/documents/graduates/gradpolmanual.pdf> for more information.

### **Overview of Doctoral Program Process**

Soon after identifying a faculty advisor, and assembling a committee, the student meets with the advisor and committee to discuss and create his or her program. Four factors are given consideration: the student's interest, the student's background breadth, the level of competence needed to conduct a dissertation in a certain topical area, and departmental and university requirements. The program established will make it clear to the student what he or she must do to earn the Ph.D. The two research tool requirements that the student plans to complete must be identified at this time. Although the program and dissertation proposal subsequently may be modified in a minor way, both the student and the advisor/committee should assume that it will be adhered to in the main. Should the student's area of interest for dissertation research change significantly, the student's program will be subject to departmental review, and a determination will be made whether the department can support the new topic. If so, a new program and a new committee must be formed. If not, the department may decide that the student's program be terminated.

The advisor certifies to the departmental director of graduate programs that the student's program has been established. On this basis, the student will then be advanced to preliminary candidacy. After completing GEOG 4020, and when the student's advisor ascertains that the student's dissertation proposal is ready to be presented, the student shall organize and schedule a dissertation proposal defense with his/her committee. Once the dissertation proposal has been approved and all relevant coursework has been completed, the student is eligible to take the comprehensive examination. The student must discuss the format, scheduling, and content of the exam with his/her advisor and committee. Once the advisor provides consent, the student will schedule the exam with each of the members of the committee. The student's advisor must also inform the departmental director of graduate programs concerning the scheduling and results of the comprehensive exam.

After all required coursework (including tool requirements), approved dissertation proposal, and comprehensive examination have been completed, the student is advanced to final candidacy for the PhD degree, and attains ABD (All But Dissertation) status. The student then completes the dissertation in consultation with his/her advisor. The members of the student's committee other than the advisor will normally act as second and third, etc., readers of the dissertation. Their comments and suggestions should be given to the committee chairperson (advisor) rather than to the student directly. The committee chairperson may thus incorporate the comments of other readers into his/her own so that the student is working with one critique instead of several. Once the advisor and committee members have given approval to the dissertation draft, the student will schedule the final oral examination with each member of the committee, including the outside representative from the University. Once the student passes the final oral examination, the dissertation is formally approved the student is eligible to receive the PhD degree.

## General Requirements

The general requirements for the Doctor of Philosophy (PhD) degree can be found on the Department of Geography & the Environment website. You should refer to this site periodically.

The general requirements for a PhD degree in Geography are summarized here.

### *Credit hours*

1. A minimum of 117-quarter hours of graduate credit.
2. A maximum of 45-quarter hours of graduate credit earned for the master's degree may be applied toward the Ph.D.
3. No more than 15-quarter hours of graduate credit will be accepted in transfer from another institution. This does not include course work completed as part of a master's degree. Any transfer of credits from other institutions has to be requested during the first quarter of entrance.
4. At least 32-quarter hours must be earned in topical courses offered by the Department of Geography & the Environment
5. At least 12-quarter hours of course work must be earned in courses in allied discipline(s) and/or equivalent hours of internship experience to fulfill the cognate requirement.
6. A total of 4-quarter hours must be counted toward the degree for GEOG 4000 (Fundamental Geographic Perspectives). This course, offered in the autumn quarter, is an introduction to the historical foundations and current research developments in Geography and its major subfields.
7. A total of 4-quarter hours must be counted toward the degree for GEOG 4020 (Geographic Research Methodology). This course is offered in the winter quarter, and focuses on the purpose, goals, and methods of research as conducted in the field of Geography.
8. A total of 4-quarter hours must be counted toward the degree for GEOG 3000 Advanced Geographic Statistics. This course is offered in the winter quarter, and provides a fundamental basis in understanding and using statistical techniques in geographic research.
9. Register for GEOG 4900 (0 credits) every quarter (fall, winter, spring) and attend departmental colloquium.
10. A maximum of 25 quarter hours may be counted toward the degree for GEOG 5995 (Independent Dissertation Research). **These course hours can be taken any time after the dissertation proposal has been approved, and represents credit hours taken to complete the dissertation.**

### *Academic Performance*

1. Only courses with a grade of "B" or better may be counted towards the degree. If a grade of "B" or better is not attained in a course, the student must re-register and re-take the course (with a grade of "B" or better earned). If the course is not a required course, the student may substitute with another course rather than retaking the same course. A grade of B- does not meet the University criteria of "B" or better.

2. Should a student's grade point average fall below 3.00, the student is placed on academic probation and continuation in the program is subject to department review and possible termination.
3. If a student receives a grade of less than a B in two or more courses, they will be automatically terminated from the program. (B- is less than B)

### ***Residency***

1. A minimum of 57-quarter hours must be earned at the University of Denver.
2. Students must be in residence at the University of Denver for a minimum of six quarters, including at least two full-time consecutive quarters. Full-time student status requires registration for 8 hours per quarter.

### ***Examinations***

PhD Research Proposal Presentation. Each student is required to prepare and present a research proposal to be formally approved by the student's faculty committee. Doctoral students must present their proposal for the committee approval by the time that the student would be finishing his/her substantive course work; this is equivalent to having completed 91-quarter hours toward the PhD degree (including 45 hours from Master's program). If a doctoral student does not have an approved proposal by the end of the quarter in which the student has completed 91-quarter hours, the student is placed on academic probation and is given one additional quarter to have a proposal approved by the student's committee. **If the proposal has not been approved by the end of the quarter following the completion of 91-quarter hours of PhD degree coursework, the student's program will be terminated due to insufficient progress toward the degree.** The student may, however, file a petition before the eighth week of that quarter requesting an extension of probationary status for one additional quarter. If this petition is granted, the student must have a proposal approved by the eighth week of the next quarter to continue in the program. If not, the program is automatically terminated. If a student has encountered severe extenuating circumstances beyond the student's control, a petition may be filed to extend probationary status subject to approval by the Department Chair and the departmental Director of Graduate Programs.

Comprehensive exam. This exam, which includes both written and oral parts, is designed to evaluate the student's work at the University of Denver. This exam is usually scheduled after all substantive course work has been completed, the dissertation proposal has been approved, and at least three quarters prior to expected graduation. Students should consult with their advisor and committee members to achieve a greater understanding of what will be on the exam. The written portion of the exam can be taken in one of two formats: 1) a written examination conducted in the department usually taken over two days, lasting four hours each day, or 2) a take-home examination in which the student has 5 days to complete the exam. An oral examination is held two weeks after the written exam has been completed. A candidate who fails one or all parts of the comprehensive exam may petition the department for re-examination. Re-examination, if granted by the department, may not be scheduled until the succeeding quarter and may not be retaken more than one time.

Final exam. Upon completion of course work, approved proposal, comprehensive exam, and the dissertation, each student will undergo a final oral examination. A final examination may not be scheduled until at least the second quarter following the quarter in which the comprehensive exam was successfully completed (the summer may count as a quarter; though, no examinations should be scheduled during the summer). The final oral examination is to be conducted at least two weeks before the end of the quarter in which the degree is to be awarded. This exam is usually about two hours in length, and is composed of a 15 to 20 minute presentation by the student followed by questions from the committee. The examining committee consists of no fewer than four members chosen from the faculty of the department or related



cognate disciplines (see p. 11 for committee composition). There is also a non-voting outside member of the examining committee who serves as the chair for the final examination and must be a tenured or tenure-track faculty member at the University serving as the University's representative.

### **Specific Requirements**

1. A total of 72-quarter hours of earned credit beyond the master's degree.
2. Required Courses: Once a student has been accepted in the doctoral program, these courses can only be taken at the University of Denver. If a grade of "B" or better is not earned in any of these required courses, the student must re-register and re-take the course. Failure to earn a grade of "B" or better a second time will result in automatic termination of the student's program.

GEOG 4000: Fundamental Geographic Perspectives	4 hrs
GEOG 4020: Geographic Research Methods	4 hrs
GEOG 3000: Advanced Geographic Statistics	4 hrs
GEOG 4900: Graduate Colloquium	0 hrs

3. Topical Courses: A minimum of 32-quarter hours of GEOG courses at 3000 or higher level (see page 8) (GEOG 5991 Independent Study can count towards topical course requirements if approved by the student's advisor.)
4. Tools Requirement: Each candidate must demonstrate proficiency in two tools required for research and advanced study. Tool requirements are determined by the candidate's advisor and committee, and may include one or more languages, statistical methods, laboratory, or other research skills. GEOG 3000 Advanced Geographic Statistics counts as one of the tools needed.
5. Completion of a minimum of two research seminars. Successful completion of GEOG 4000 Fundamental Geographic Perspectives will count as one of the seminars needed.
6. Completion of study in a cognate field to be approved by the advisor and committee. At least 12-quarter hours of coursework in allied disciplines and/or equivalent hours of internship experience must be obtained.
7. Completion of additional course work to reach a total of 72-quarter hours. (The above requirements are minimums and will be exceeded in cases where inadequate background or unsatisfactory performance exists.)
8. Completion and committee approval of a dissertation proposal.
9. Successful completion of the comprehensive examination.
10. Completion and successful defense of a doctoral dissertation.

## Specific Procedures

1. The new student is encouraged to identify an advisor soon after beginning the program. Shortly thereafter, the student and advisor should begin to assemble the student's committee. This should occur during the student's first quarter and should not occur later than the end of the student's second quarter.
2. The student is advanced to preliminary candidacy with the establishment of a program of study, including identification of research tools and the general research topic of the dissertation, in consultation with the advisor and committee. This should occur no later than the beginning of the third quarter of the student's program.
3. The student completes the majority of the course work in the program and is certified by the advisor on the completion of two tool requirements. These are established by the advisor/committee.
4. The student in association with his or her advisor identifies a dissertation topic. **The student presents a formal research proposal orally to the committee for constructive critique. A written proposal is to be handed to all members of the faculty committee at least two weeks before the presentation.** This presentation is normally given during the third quarter of the PhD student's second year OR no later than the quarter in which the student completes a total of 91-quarter hours in course work. As soon as is practical following the oral presentation, the student's advisor will inform him/her of the committee's assessment of the presentation and what, if any, changes need to be incorporated in the research project in order to make it acceptable to the committee (see Flow Chart, p.46). As soon as the dissertation proposal has been approved, the Thesis/Dissertation Oral Defense Committee Recommendation form should be submitted to the Office of Graduate Education (<http://www.du.edu/currentstudents/graduates/graduationinformation.html>).
5. The student completes the comprehensive exam successfully. At this point, the student advances to final candidacy. This should occur before the student has progressed very far with dissertation research after the successful completion of the above mentioned requirements, and **no later than three quarters prior to the expected date for completion of the degree.**
6. The advisor should be provided with draft copies of the dissertation as its writing progresses, according to the wishes of the advisor. The readers of the student's dissertation should also be given the opportunity to view the dissertation in draft form. All suggestions and comments should flow through the advisor to the student. In no case will the dissertation be produced in final form until the other readers have been given the opportunity to review the draft and transmit their remarks to the student's advisor. The advisor pronounces the dissertation acceptable for final preparation. **The final draft, including tables, graphics and illustrations in final form, must be available to the final exam committee at least three weeks prior to the final oral exam.** This means that the final draft, as approved by the advisor, must be made available to the committee before the fifth week (midpoint) of the quarter in which the final oral exam is scheduled. Also, the completed Schedule of Oral Examination form must be received in the Office of Graduate Education at least three weeks prior to the exam (before the fifth week of the quarter) (see Flow Chart, p. 47).
7. A final oral examination which serves as a defense of the dissertation itself is required. This should be taken before the deadline established by the Office of Graduate Education for that quarter in which the degree is to be awarded, which is two weeks before the end of the quarter. The Oral Defense Committee must have an outside chairperson from the University but outside the Department. The outside chairperson must be a tenured or tenure-track faculty member from DU. It is the student's responsibility, with assistance from the student's advisor, to arrange for the outside chairperson.
8. **The dissertation in its final approved form, including necessary revisions identified in the final oral exam, must be submitted to the Office of Graduate Education no later than one week before the end of the quarter (the ninth week of the quarter).**

## Notes

The Office of Graduate Education at the University establishes various deadlines for graduation at the end of a particular academic quarter. The student must be aware of these deadlines. In any event, the dissertation must be filed with the Office of Graduate Education no later than seven years from the time a student has started the doctoral program. **NO EXTENSIONS WILL BE GRANTED BY THE GEOGRAPHY DEPARTMENT.**

Since the University hires most of its faculty on nine-month appointments, the summer months constitute off-duty time for faculty when their own research and other business are conducted. Accordingly, there will be no graduate student examinations, either oral or written, during the period between spring graduation and September 1 of that calendar year.

## TIMETABLE

### FIRST YEAR IN PROGRAM

Autumn Quarter	
GEOG 4000: Fundamental Geographic Perspectives	4 hrs
Course work	4 hrs
Winter Quarter	
*GEOG 4020: Geographic Research Methods	4 hrs
(it is possible to take this course in 2 <sup>nd</sup> year)	
Course work	4 hrs
Spring Quarter	
GEOG 3000: Advanced Geographic Statistics	4 hrs
Course work	4 hrs

### SECOND YEAR IN PROGRAM

Autumn Quarter	
Course work	8 hrs
Winter Quarter	
Course work	8 hrs
Spring Quarter	
Course work	8 hrs

### THIRD YEAR IN PROGRAM

Autumn Quarter	
Additional courses as needed	8 hrs
Winter Quarter	
Additional courses as needed	8 hrs
Spring Quarter	
Additional courses as needed	8 hrs

(\* Students are expected to attend Colloquium events in all three academic quarters each year.)

**GRADUATION:** Students should refer to the Graduate Policies and Procedures Manual from the Office of Graduate Education at <http://bulletin.du.edu/graduate/gradpolicy/>.

## **MA PROGRAM IN GEOGRAPHY**

### **The Basic Structure**

Your program will consist of formal course work and independent study through which you develop and prepare your independent research, i.e. thesis. It is this research component that largely distinguishes your graduate program here. You will work with a faculty advisor and a faculty committee to determine the appropriate course work and nature of the independent study.

### ***Faculty Advisor***

Soon after beginning your graduate program, you will need to identify a faculty member who will serve as your advisor. The advisor should be a full-time tenured or tenure-track faculty member in the Geography Department with a research record and interest appropriate to your proposed research area of specialization. The advisor assists you in developing the program of course work, oversees the thesis, maintains your student file and keeps the department chair and director of graduate programs informed of your progress. You will need to fill out the Advisor Acceptance Form, have it signed by the prospective advisor, and turn it in to the Graduate Program Director (see page 43).

### ***Faculty Committee***

Once you have identified an advisor and a working research topic, you and your advisor should begin to assemble the rest of your faculty committee. The Master's degree candidate's thesis committee is comprised of at least three members: an advisor and two other committee members. All members of the committee must be full-time appointed faculty at DU and have research records appropriate to the student's area of specialization. DU faculty from appropriately-related units who hold the terminal degree in their field may serve on the committee as long as the candidate's graduate unit has the majority representation.

The committee should approve your program of study no later than the beginning of the second quarter of your program of study.

Students should refer to the Graduate Policies and Procedures Manual from the Office of Graduate Education <http://www.du.edu/media/documents/graduates/gradpolmanual.pdf> for more information.

### **General Requirements**

The general requirements for the Master of Arts (MA) degree can be found on the Department of Geography & the Environment website. You should refer to this site periodically.

The general requirements for the MA in Geography are summarized here.

### ***Credit hours***

1. A minimum of 45-quarter hours is required.
2. At least 33-quarter hours must be in courses taken within the Department of Geography and the Environment.

3. No more than 10-quarter hours will be accepted in transfer from another institution. Any transfer of credits from other institutions has to be requested during the first quarter of entrance.
4. A total of 4-quarter hours must be counted toward the degree for GEOG 4000 (Fundamental Geographic Perspectives). This course, offered in the autumn quarter, is an introduction to the historical foundations and current research developments in Geography and its major sub-fields.
5. A total of 4-quarter hours must be counted toward the degree for GEOG 4020 (Geographic Research Methodology). This course is offered in the winter quarter, and focuses on the purpose, goals, and methods of research as conducted in the field of Geography.
6. A total of 4-quarter hours must be counted toward the degree for GEOG 3000 Advanced Geographic Statistics. This course is offered in the winter quarter, and provides a fundamental basis in understanding and using statistical techniques in geographic research.
7. Register for GEOG 4900 (0 credits) every quarter (fall, winter, spring) and attend departmental colloquium.
8. A maximum of 5-quarter hours may be counted toward the degree for GEOG 4995 (Independent Research). This course can be taken any time after the thesis proposal has been approved, and represents credit hours taken to complete the thesis.

#### ***Academic Performance***

1. Only courses with a grade of "B" or better may be counted towards the degree. If a grade of "B" or better is not attained in a course, the student must re-register and re-take the course (with a grade of "B" or better earned). If the course is not a required course, the student may substitute with another course rather than retaking the same course. A grade of B- does not meet the University criteria of "B" or better.
2. Should the cumulative grade point average fall below 3.00, a student is placed on academic probation and the student's continuation in the program is subject to departmental review and possible termination.
3. If a student receives a grade of less than a B in two or more courses, they will be automatically terminated from the program. (B- is less than B).

#### ***Residency***

Enrollment as a graduate student at the University of Denver for at least three quarters is required for graduation.

#### ***Examinations***

MA Thesis Proposal Presentation. Each student is required to prepare and present a research proposal that is formally approved by the student's faculty committee. Master's thesis students must present proposals for committee approval by the time the student would be finishing his/her substantive course work; this is equivalent to having completed 32-quarter hours toward the Master's degree. If a master's thesis student does not have an approved proposal by the end of the quarter in which the student has completed 32-quarter hours, the student is placed on academic probation and is given one additional quarter to have a proposal approved by the student's committee. **If the proposal has not been approved by the end of the quarter following the student's completion of 32- quarter hours of master's degree coursework, the student's program will be terminated due to insufficient progress toward the degree.** The student may,



however, file a petition before the eighth week of that quarter requesting an extension of probationary status for one additional quarter. If this petition is granted, the student must have a proposal approved by the eighth week of the next quarter to continue in the program. If not, the program is automatically terminated. If a student has encountered severe extenuating circumstances beyond the student's control, a petition may be filed to extend probationary status subject to approval by the departmental Director of Graduate Programs and Department Chair

Final (oral) Examination. Upon completion of required course work, approved proposal, and the thesis, each student will undergo a final oral examination. A final examination may not be scheduled until at least the second quarter following the quarter in which the research proposal was approved (The summer may count as a quarter; though, no examinations should be scheduled in the summer). The final oral examination is to be conducted at least two weeks before the end of the quarter in which the degree is to be awarded (prior to eighth week of the quarter). This exam is usually about two hours in length, and is composed of a 15 to 20 minute presentation by the student, followed by questions from the committee. In all cases, the exam will address course work and the thesis research. The examining committee is composed of the student's committee (see page 19) and a tenured or tenure-track University faculty member serving as the University's representative.

The core of the MA degree is the formal course work and the thesis research. A master's thesis is the product of rather extensive scientific research and must be prepared according to an established format. The thesis should be of publishable quality, though professional publication is not a requirement. Several papers from master's theses completed in this department, however, have been published in professional journals.

### **Specific Requirements**

1. A total of 45 quarter hours of earned credit.
2. Required Courses: If a student has not taken or received prior credit for any of these courses, upon entering the MA program, these courses can only be taken in the Department of Geography & the Environment at the University of Denver. If a grade of B or better is not earned in any of these required courses, the student must register for and take the course again. Failure to earn a grade of B or better a second time will result in automatic termination of the student's program.

GEOG 4000: Fundamental Geographic Perspectives	4 hrs
GEOG 4020: Geographic Research Methods	4 hrs
GEOG 3000: Advanced Geographic Statistics	4 hrs
GEOG 4900: Graduate Colloquium	0 hrs

3. Additional transfer, departmental, and other university courses are needed to reach total of 45 hrs. (The above requirements are minimums and will be exceeded in cases where inadequate background or unsatisfactory performance exists.)
4. Completion of an acceptable proposal and thesis.

### Specific Procedures

1. Upon entering the graduate program, each student is initially advised by the Director of Graduate Programs for the department. The student should identify a Thesis Program advisor during the student's first quarter in the program. Shortly thereafter, the student and her/his advisor should begin to assemble the student's committee.
2. Soon after identifying a faculty advisor, the student meets with the advisor to create his or her program of study.
3. The student is advanced to degree candidacy after the program has been planned, a timetable has been arranged, and the research proposal has been presented and accepted.
4. Although the program subsequently may be modified in a minor way, both the student and the advisor/committee should assume that it will be followed in the main. Should the student's area of interest for thesis research change significantly, the student's program will be subject to committee and departmental review, and a determination will be made whether the department can support the new topic. If so, a new program and a new committee must be formed. If not, the department may decide that the student's program be terminated.
5. A written proposal is usually developed during the second and third quarters of attendance and must be accepted by the student's committee. An oral presentation of the proposal to the committee is required, and should take place by the end of the third quarter of attendance, or, no later than the quarter in which the student completes a total of 32-quarter hours of course work. **The written proposal must be provided to all faculty committee members at least two weeks prior to the presentation.** Following the oral presentation and review of the written proposal, the committee will convey their impressions and recommendations directly to the student's advisor. The advisor will then meet with the student and together they will determine any changes necessary to render the research proposal acceptable to the committee (see Flow Chart, p. 42). As soon as the thesis proposal has been approved the Thesis/Dissertation Oral Defense Committee Recommendation form should be submitted to the Office of Graduate Education.
6. Regarding the course GEOG 4995 Independent Research (Thesis): the student may not register for this course until successful completion of GEOG 4020 and acceptance of the proposal by the committee.
7. Review of thesis: The thesis is directed by the student's program advisor and evaluated by the Faculty Committee. All suggestions and comments should flow through the advisor to the student. The advisor pronounces the thesis acceptable for final preparation. The final draft, including tables, graphics and illustrations in final form, must be available to the final exam committee at least three weeks prior to the final oral exam. This means that the final draft, as approved by the advisor, must be made available to the committee before the fifth week (midpoint) of the quarter in which the final oral exam is scheduled. Also, the completed Schedule of Oral Examination form must be received in the Office of Graduate Education at least three weeks prior to the exam (see Flow Chart p. 43).
8. A final oral examination is required. The exam will focus on both course work and serve as a defense of the thesis. It should be taken before the deadline established by the Office of Graduate Education for the quarter in which the degree is to be awarded, which is two weeks before the end of the quarter. The Oral Defense Committee must have an outside chairperson from the University but outside the Department. The outside chairperson must be a tenured or tenure-track faculty member from DU. It is the student's responsibility, with assistance from the student's advisor, to arrange for the outside chairperson.
9. **The thesis in its final approved form, including necessary revisions identified in the final oral exam, must be in the Office of Graduate Education no later than one week before the end of the quarter (the ninth week of the quarter).**

## Notes

The Office of Graduate Education at the University establishes various deadlines for graduation at the end of a particular academic quarter. The student must be aware of these deadlines. In any event, the thesis must be filed with the Office of Graduate Education no later than five years from the time a student has started the master's program. **NO EXTENSIONS WILL BE GRANTED BY THE GEOGRAPHY DEPARTMENT.**

Since the University hires most of its faculty on nine-month appointments, the summer months constitute off-duty time for faculty when their own research and other business is conducted. Accordingly, there will be no graduate student examinations, either oral or written, during the period between spring graduation and September 1 of that calendar year.

## TIMETABLE

The timetable presented below is designed for students entering the program in the autumn quarter of the academic year. Students starting their programs in other quarters may have to make certain adjustments to fulfill degree requirements. Full-time student status requires at least 8 hours per quarter.

### *Standard Course Schedule for MA Students*

#### FIRST YEAR IN PROGRAM

Autumn Quarter		
GEOG 4000: Fundamental Geographic Perspectives	4 hours	
Topical course		4 hours
Winter Quarter		
GEOG 4020: Geographic Research Methodology	4 hours	
Topical course		4 hours
Spring Quarter		
GEOG 3000: Advanced Geographic Statistics	4 hours	
Topical course		4 hours
Total First Year		24 - 30 hours

(\* Students must attend Colloquium events in all three quarters.)

Acceptance of a proposal is encouraged by the end of the first academic year.

#### SECOND YEAR IN PROGRAM

Autumn Quarter		
Additional course work to meet minimum requirements		7-9 hours
Winter Quarter		
Additional course work as necessary		4-5 hours
*GEOG 4995: Independent Research		4-5 hours
Spring Quarter		
Additional course work as necessary		7-9 hours
Completion of thesis.		

(\* This course can be taken in Spring or Winter quarter as necessary.)

**GRADUATION:** Students should refer to the Graduate Policies and Procedures Manual from the Office of Graduate Education at <http://www.du.edu/media/documents/graduates/gradpolmanual.pdf>

## ***MS IN GEOGRAPHIC INFORMATION SCIENCE***

### **MS-GISc Program Objective**

The MS-GISc is designed to provide students with a foundation of topical knowledge and a variety of analytical and applied skills required for advanced degrees or employment in a variety of professional careers in which the application of spatial data is important.

### **The Basic Structure**

Your program will consist of formal course work and a final project. The project requires you to work with a faculty advisor and a faculty committee to determine the appropriate course work and nature of the project, as follows.

#### ***Faculty Advisor***

Before beginning MS GIS, you will need to identify a project and a faculty member who is willing to work with you on the project and who will serve as your advisor. Typically, your advisor will be a faculty member whose geographic specialization most closely matches your own area of interest. The advisor will assist you in developing the program of course work, oversees the project, and keeps the department chair and director of graduate programs informed of your progress. You will need to fill out the Advisor Acceptance Form, have it signed by the prospective advisor, and turn it in to the Graduate Program Director (see page 39).

#### ***Faculty Committee***

Once you have identified an advisor and a working topic, you and your advisor should begin to assemble the rest of your faculty committee. The MS-GISc committee is comprised of at least two members: an advisor and one other committee member. The advisor and at least one committee member must be full-time or adjunct faculty members in the Geography Department who should have expertise in the candidate's selected area of research. A third member of the MS-GISc project committee can be from outside the department (from another department, university, company, or agency), but with expertise in the candidate's selected area of research. At least one member of the committee must be the faculty member who is the beneficiary of the project or a representative ("the client") of the external organization involved in your project.

### **General Requirements**

The general requirements for the Master of Science (MS-GISc) degree can be found on the Department of Geography & the Environment website. You should refer to this site periodically.

The requirements for the MS-GISc are summarized here.

#### ***Credit hours***

1. A minimum of 48-quarter hours is required.
2. At least 24 quarter hours must be completed in courses taken within the Department of Geography & the Environment at the University of Denver.

3. No more than 10-quarter hours will be accepted in transfer from another institution.
4. No more than 24-quarter hours will be accepted in transfer from the University College GIS Certificate Program. **The student must have earned a grade of B or better to transfer the course.**

**Credit transfer from University College** - the following courses transfer towards the MS-GIS requirements:

- GIS 4700 Introduction to Remote Sensing, 4.0 hrs for GEOG 3200 Remote Sensing
- GIS 3140 GIS Database Design, 4.0 hrs for GEOG 3140 Database Design\*
- GIS 4150 GIS Project Design, 4.0 hrs for GEOG 3150 GIS Project Management\*\*

Other GIS Certificate courses will only transfer as Electives

\* GIS 3140 GIS Database Design will continue to be accepted for students that have taken the course, but this course is no longer offered in the GIS Certificate Program.

\*\* GIS 4150 GIS Project Design will continue to be accepted for students that have taken the course, but this course is no longer offered in the GIS Certificate Program

5. If the student is transferring credits from another institution and University College credits, both must add up to a maximum of 24-quarter hours, but only 10-quarter hours will be accepted from another institution outside of DU. Only courses with a grade of "B" or better may be transferred into the master's degree.

### ***Academic Performance***

1. Only courses with a grade of "B" or better may be counted towards the degree. If a grade of "B" or better is not attained in a course, the student must re-register and re-take the course (with a grade of "B" or better earned). If the course is not a required course, the student may substitute with another course rather than retaking the same course. A grade of B- does not meet the University criteria of "B" or better.
2. Should the cumulative grade point average fall below 3.00, a student is placed on academic probation and the student's continuation in the program is subject to departmental review and possible termination.
3. If a student receives a grade of less than a B in two or more courses, they will be automatically terminated from the program. (B- is less than B).

### ***Residency***

Each candidate for the Master of Science degree must fulfill a minimum of 3 quarters enrolled as a graduate student at the University of Denver.

### ***Examinations***

Project Proposal Presentation. Each student is required to prepare and present a project proposal that is formally approved by the student's faculty committee. Project students in the MS-GISc program must present proposals for committee approval by the time the student would be finishing his/her substantive course work; this is equivalent to having completed 32-quarter hours toward



the master's degree. If a master's project student does not have an approved proposal by the end of the quarter in which the student has completed 32-quarter hours, the student is placed on academic probation, and is given one additional quarter to have a proposal approved by the student's committee. **If the proposal has not been approved by the end of the quarter following the student's completion of 32 quarter-hours of Master's Degree coursework, the student's program will be terminated due to insufficient progress toward the degree.** The student may, however, file a petition before the eighth week of that quarter requesting an extension of probationary status for one additional quarter. If this petition is granted, the student must have a proposal approved by the eighth week of the next quarter to continue in the program. If not, the program is automatically terminated. If a student has encountered severe extenuating circumstances beyond the student's control, a petition may be filed to extend probationary status subject to approval by the Department Chair and departmental Director of Graduate Programs.

Final Project Presentation. Upon completion of required course work, approved proposal, and the project, each student will make a final project presentation. A final project presentation may not be scheduled until at least the second quarter following the quarter in which the project proposal was approved (The summer may count as a quarter; though, no presentations should be scheduled during summer). The final project presentation is to be conducted at least two weeks before the end of the quarter in which the degree is to be awarded (prior to eighth week of the quarter). The student's presentation should be approximately 15 to 20 minutes in length, followed by questions from the committee. The entire defense should be no longer than 2 hours. In all cases, the presentation will address the requirements of the project/research. The examining committee is composed of the advisor, at least one other Geography faculty member, and a representative of the client organization.

## Specific Requirements

### *Prerequisite Courses*

In preparation for your graduate study in Geographic Information Science, we expect you to have a base knowledge of cartography, geographic information systems, and statistics. A body of prerequisite courses has been identified to insure that new students meet a minimum set of skills. These courses are offered at the undergraduate level in the Department of Geography & the Environment, at the graduate level in University College at the University of Denver, or are available at most universities offering degrees or concentrations in geography. New students to the graduate degree program must have completed these courses at their previous institution or enroll in the courses in their first quarters at the University of Denver to meet remedial requirements. The prerequisites identified in the following table do not count toward the MS-GISc degree credit hour requirement.

PREREQUISITE COURSES
Geographic Statistics
Introduction to GIS

### *Workplace Experience*

In the event that a student has acquired the prerequisite knowledge and skills in the workplace, these course requirements may be waived. Learning outcomes of prerequisite classes will be compared to the knowledge, skills, and abilities gained in the workplace to evaluate whether the prerequisite course requirements will be waived.

### **Basic Requirements**

1. Completion of a minimum of 48-quarter hours.

<u>Required Coursework</u>	<u>Credit Hours</u>
GEOG 3000 Advanced Geographic Statistics	4
GEOG 3010 Geographic Information Analysis	4
GEOG 3140 Database Design	4
GEOG 3150 GIS Project Management	4
GEOG 3200 Remote Sensing	4
GEOG 4020 Research Methods	4
GEOG 4900 Graduate Colloquium	0
GEOG 4993 Capstone Project	4
Electives	20
	<b>48</b>

2. Required Courses: If a student has not taken or received prior credit for any of the required courses, these courses can only be taken in the Department of Geography & the Environment at the University of Denver once the student has entered the MS-GISc program. If a grade of "B" or better is not earned in any of these courses, the student must re-register and re-take the course. Failure to earn a "B" or better a second time will result in automatic termination of the student's program.
3. Elective courses: Each student must take a minimum of 8-quarter hours of electives in geography from any of the GEOG courses at 3000 level or above. It is strongly recommended that students take GEOG 4000 Fundamental Geographic Perspectives, offered during the fall quarter, as one of their elective courses
4. Complete a Capstone Project.

### **Other Rules**

1. MS on campus students may not register for courses in the online program unless it is a required course not offered on campus or with special permission by the department.
2. MS on campus students are permitted to take elective credits through University College as long as they stay within the transfer of credit requirements (24 credits must be taken with the Department of Geography & the Environment).
3. Graduate Teaching Assistants are not permitted to take courses at University College.
4. GEOG 4993 Capstone Project is equivalent to GEOG 4995 Independent Research that students in the MA program may take as part of their coursework, therefore, MS students should not register for GEOG 4995 Independent Research but instead GEOG 4991 Independent Study if they need additional credits to work on their Capstone Project (as approved by advisor)

## **Project**

Students will be required to produce a final project of professional quality demonstrating the student's ability to apply Geographic Information Science to their chosen area of specialization.

The project should be developed on behalf of a company, agency, non- governmental organization, or faculty member who is referred to as the client. The project may be predominantly technical in nature or may focus on a more academic research component. The project must be approved by the student's "client" and committee.

The project must demonstrate mastery of one or more geo-technologies and the student should engage in all facets of the project, from design to implementation. The client should guide the student with respect to defining the scope, function, and purpose of the project, in addition to providing data and other resources needed to accomplish the defined objectives.

The client must also serve on the student's committee for the proposal and final presentation evaluations. The completed project must include the following:

- 1) A written report;
- 2) Digital and/or hard copies of data, maps, and software produced; and
- 3) A user guide, if appropriate.

## **Specific Procedures**

1. Upon entering the graduate program, each student is initially advised by the Graduate Program Director for the department. The permanent advisor should be identified during the student's first quarter in the program, and then a committee should be assembled by the student and advisor.
2. Soon after identifying a faculty advisor, the student meets with the advisor to create his or her program. The student is advanced to degree candidacy after the program has been planned, a timetable has been arranged, and the project proposal has been presented and accepted by the student's committee.
3. Although the program subsequently may be modified in a minor way, both the student and the advisor/committee should assume that it will be followed. Should the student's area of interest for project research change significantly, the student's program will be subject to committee and departmental review, and a determination will be made whether the department can support the new topic. If so, a new program and a new committee must be formed. If not, the department may decide that the student's program be terminated.
4. A written proposal is usually presented to the student's committee after most course work is complete and the student is ready to begin the project. Formal presentation of the proposal to the committee is required, and should take place no later than the quarter in which the student completes a total of 32-quarter hours of course work. This written proposal must be provided to all faculty and/or committee members at least two weeks prior to the presentation (see Flow Chart, p. 42).
5. Following the proposal presentation and review of the written proposal, the committee will convey their assessment and recommendations directly to the student's advisor. The advisor will then meet with the student and together they will determine changes necessary to render the project acceptable to the committee.

6. Regarding the course GEOG 4993 Project: The student may not register for this course until successful completion of GEOG 4020 (Geographic Research Methods) and acceptance of the proposal by the committee.
7. Review of the Project: the project is directed by the permanent advisor and evaluated by at least the two other members of the committee. Sometimes, an additional reader within the department or from another department, or from another university or agency, may be consulted to enhance the quality of the work. All suggestions and comments should flow through the advisor to the student. The advisor pronounces the project acceptable for final preparation. The final draft, including tables, graphics and illustrations in final form, must be available to the committee at least three weeks prior to the final project presentation evaluation. This means that the final draft, as approved by your advisor, must be provided to the committee before the fifth week (midpoint) of the quarter in which you wish to schedule your final project presentation (see Flow Chart, p. 43).

A final project evaluation is required, in which the student presents and defends the project. This must take place before the deadline established by the Office of Graduate Education for the quarter in which the degree is to be awarded, which is two weeks before the end of the quarter.

### **Notes**

The Office of Graduate Education at the University establishes various deadlines for graduation at the end of a particular academic quarter. The student must be aware of these deadlines. In any event, the project and all other degree requirements must be completed no later than five years from the time a student has started the master's program. **NO EXTENSIONS WILL BE GRANTED BY THE GEOGRAPHY DEPARTMENT.**

Since the University hires most of its faculty on nine-month appointments, the summer months constitute off-duty time for faculty when their own research and other business are conducted. Accordingly, there will be no graduate student examinations, either oral or written, during the period between spring graduation and September 1 of that calendar year.

### ***Standard Course Schedule for MS-GIS Students***

#### ***First Year***

<b><u>Fall</u></b>	<b><u>Winter</u></b>	<b><u>Spring</u></b>
(4) Database Design	(4) Research Methods	(4) Geographic Information
(4) Geography Elective	(4) Geography Elective	Analysis
(Fundamental Geographic Perspectives)		(4) Advanced Geographic Statistics

#### ***Second Year***

<b><u>Fall</u></b>	<b><u>Winter</u></b>	<b><u>Spring</u></b>
(4) Remote Sensing	(4) Geography Elective	(4) Geography Elective
(4) GIS Project Management	(4) Elective/Specialization	(4) Project

(Students must attend colloquium events in all three quarters)

**GRADUATION:** A student will not be approved for graduation until all coursework requirements and capstone project are completed and approved, and a grade is posted for GEOG 4993.

## ***MS IN GEOGRAPHIC INFORMATION SCIENCE- Online***

### **MS-GIS Program Objective**

The MS-GISc is designed to provide students with a foundation of topical knowledge and a variety of analytical and applied skills required for advanced degrees or employment in a variety of professional careers where the application of spatial data is important.

### **The Basic Structure**

Your program will consist of formal course work and a Capstone Project.

### ***Faculty Advisor***

Your faculty advisor will be the director of the online MS-GISc program.

### **General Requirements**

The general requirements for the Master of Science (MS-GISc) degree can be found on our website. You should refer to this site periodically.

The requirements for the Online MS-GISc are summarized here.

### ***Credit hours***

1. A minimum of 48-quarter hours is required.
2. At least 24-quarter hours must be completed in courses taken within the Department of Geography & the Environment at the University of Denver.
3. No more than 10-quarter hours will be accepted in transfer from another Institution different from DU.
4. No more than 24-quarter hours will be accepted in transfer from the DU University College GIS Certificate Program. **The student must have earned a grade of B or better to transfer the course.**

**Credit transfer from University College** - the following courses transfer towards the MS-GIS requirements.

- GIS 4700 Introduction to Remote Sensing, 4.0 hrs for GEOG 3200 Remote Sensing
- GIS 3140 GIS Database Design, 4.0 hrs for GEOG 3140 Database Design\*
- GIS 4150 GIS Project Design, 4.0 hrs for GEOG 3150 GIS Project Management\*\*

Other GIS Certificate courses will only transfer as Electives.

\* GIS 3140 GIS Database Design will continue to be accepted for students that have taken the course, but this course is no longer offered in the GIS Certificate Program.

\*\* GIS 3150 GIS Project Design will continue to be accepted for students that have taken the course, but this course is no longer offered in the GIS Certificate Program



5. If the student is transferring credits from another institution and University College credits, both must add up to a maximum of 24-quarter hours, but only 10-quarter hours will be accepted from another institution outside of DU. Only courses with a grade of "B" or better may be transferred into the master's degree program.

### ***Academic Performance***

1. Only courses with a grade of "B" or better may be counted towards the degree. If a grade of "B" or better is not attained in a course, the student must re-register and re-take the course (with a grade of "B" or better earned). If the course is not a required course, the student may substitute with another course rather than retaking the same course. A grade of B- does not meet the University criteria of "B" or better.
2. Should the cumulative grade point average fall below 3.00, a student is placed on academic probation and the student's continuation in the program is subject to departmental review and possible termination.
3. If a student receives a grade of less than a B in two or more courses, they will be automatically terminated from the program. (Note: B- is less than B).

### ***Residency***

There is no residency requirement for online MSGISc students.

## **Specific Requirements**

### ***Prerequisite Courses***

In preparation for your graduate study in Geographic Information Science, we expect you to have a base knowledge of cartography, geographic information systems, and statistics. A body of prerequisite courses has been identified to insure that new students meet a minimum set of skills. These courses are offered at the undergraduate level in the Department of Geography & the Environment, at the graduate level in University College at the University of Denver, or are available at most universities offering degrees or concentrations in geography. New students to the graduate degree program must have completed these courses at their previous institution or enroll in the courses in their first quarters at the University of Denver to meet remedial requirements. The prerequisites identified in the following table do not count toward the MS-GISc degree credit hour requirement.

PREREQUISITE COURSES
Geographic Statistics
Introduction to GIS

### ***Workplace Experience***

In the event that a student has acquired the prerequisite knowledge and skills in the workplace, these course requirements may be waived. Learning outcomes of prerequisite classes will be compared to the knowledge, skills, and abilities gained in the workplace to evaluate whether the prerequisite course requirements will be waived.

### ***Basic Requirements***

1. Completion of a minimum of 48-quarter hours.
2. Completion of a minimum of 24 Geography (GEOG)-quarter hours.
3. Up to 24-quarter hours may be transferred from the University College GIS Certificate Program. The student must have earned a grade of B or better to transfer the course.

<b>Required Coursework</b>	<b>Credit Hours</b>
GEOG 3000 Advanced Geographic Statistics	4
GEOG 3010 Geographic Information Analysis	4
GEOG 3140 Database Design	4
GEOG 3150 GIS Project Management or GIS 3150 GIS Project Management	4
GEOG 3200 Remote Sensing or GIS 4700 Remote Sensing	4
GEOG 4020 Research Methods	4
GEOG 4993 Project (Capstone)	<u>4</u>
<b>Total</b>	<b>28<sup>1</sup></b>

If you are transferring University College GIS certificate program credit hours (Project Design or Remote Sensing) to fulfill online MS-GISc requirements, the GIS course prefix hours will count towards your 24-quarter hours transferred in from the certificate program. You then must take remaining required courses from the GEOG required coursework listing. Additional electives must also be taken from the GEOG course offering.

4. Required Courses: If a student has not taken or received prior credit for any of the required courses, these courses can only be taken in the Department of Geography & the Environment at the University of Denver. If a grade of "B" or better is not earned in any of these courses, the student must re-register and re-take the course. Failure to earn a "B" or better a second time will result in automatic termination of the student's program.
5. Elective courses in Geography: Online MS-GISc students must take any remaining credit hours from the list of available online GEOG (geography) courses.
6. Complete a Capstone Project.

### ***Other Rules***

1. Approval of Capstone project by program director.
2. MS online students may not register for courses in the on campus program without special permission by the department.
3. GEOG 4993 Capstone Project is equivalent to GEOG 4995 Independent Research that students in the MA program may take as part of their coursework, therefore, MS students should not register for GEOG 4995 Independent Research but instead GEOG 4991 Independent Study if they need additional credits to work on their Capstone Project (as approved by advisor).

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<sup>1</sup> It is safe to assume that the online MS/GISc student will have taken at least one of the GIS certificate classes identified in the table above.

### ***Capstone Project<sup>2</sup>***

Students will be required to produce a final capstone project of professional quality demonstrating the student's ability to apply geographic information science to their chosen area of interest.

The capstone project should be developed on behalf of a company, agency, non-governmental organization, or faculty member who is referred to as the client. The project may be predominantly technical in nature or focus on a research component. The student should engage in all facets of the project, from design to implementation. The client should guide the student with respect to defining the scope, function, and purpose of the project, in addition to providing data and other resources needed to accomplish the defined objectives.

The client may also serve as an outside reader for the proposal and final presentations. The completed project must include the following:

- 1) A written capstone report;
- 2) Digital and/or hard copies of data, maps, and software produced; and
- 3) A user guide if appropriate.

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<sup>2</sup> A more complete capstone proposal and project document is available online to guide students through the capstone process and expectations.

### **Specific Procedures**

1. Students in the MS online program are advised by the online MS-GISc Program Director for the department.
2. The student communicates with the advisor to create his/her program. The student is advanced to degree candidacy after the program has been planned, a timetable has been arranged, and the project proposal has been presented and accepted by the student's committee.
3. Although the program subsequently may be modified in a minor way, both the student and the advisor/committee should assume that it will be followed. Should the student's area of interest for capstone project research change significantly, the student's program will be subject to departmental review, and a determination will be made whether the department can support the new topic. If not, the department may decide that the student's program be terminated.
4. Following the capstone proposal preparation and review of the written proposal, the capstone advisor will convey their assessment and recommendations to the student. The capstone advisor will then meet with the student, and together they will determine changes necessary to render the capstone project acceptable.
5. Regarding the course GEOG 4993 Project: The student may not register for this course until successful completion of GEOG 4020 (Geographic Research Methods), this course is usually completed at the start of the academic program.
6. Review of the Capstone Project: The project is directed by the capstone advisor and evaluated by the client and the online MS-GISc program director. The Capstone project production schedule is provided when the student enrolls in the Capstone class.

### **Notes**

The Office of Graduate Education at the University establishes various deadlines for graduation at the end of a particular academic quarter. The student must be aware of these deadlines. In any event, the project and all other degree requirements must be completed no later than five years from the time a student has started the master's program. **NO EXTENSIONS WILL BE GRANTED BY THE GEOGRAPHY DEPARTMENT.**

### ***Course Schedule for Online MS-GISc Students***

#### ***Fall Quarter***

GEOG 3150- GIS Project Management \*  
GEOG 4020- Geographic Research Methods \*  
GEOG 3010- Geographic Information Analysis  
GEOG 4993- Capstone Project

#### ***Winter Quarter***

GEOG 3000- Advanced Geographic Statistics  
GEOG 3140- GIS Database Design

#### ***Spring Quarter***

GEOG 3150- GIS Project Management \*  
GEOG 4020- Geographic Research Methods \*  
GEOG 3010- Geographic Information Analysis  
GEOG 4993- Capstone Project

#### ***Summer Quarter***

GEOG 3000- Advanced Geographic Statistics  
GEOG 3140- GIS Database Design

\* GEOG 3150 GIS Project Management and GEOG 4020 Geographic Research Methods should be completed prior to GEOG 4993 Capstone Project.

Note: GIS certificate program is completed after 24-quarter hours. GIS 4101 Introduction to GIS, and GIS 4110 Geographic Statistics are not transferable to the online MS-GISc degree program. Courses taken when they were 3.0 credit hours that will not count towards the MS degree: GIS 4501, GIS 4502.

***GRADUATION:*** A student will not be approved for graduation until all coursework requirements and capstone project are completed and approved, and a grade is posted for GEOG 4993.

## POLICIES, STANDARDS AND EXPECTATIONS

Professional conduct and adherence to the policies and standards of the Department of Geography and the Environment and the University of Denver are expected of all graduate students. The University at large considers intellectual honesty essential to its role as a community dedicated to the discovery and transmission of knowledge. Students violating this principle may forfeit their right to continue in the program. Faculty members have the right to insist on academic integrity from their students. Cheating, plagiarism, and other instances of academic dishonesty may result in a failing grade on the particular paper or project, a failing grade in the course, probation, suspension, or dismissal from the University.

### ***Academic Performance***

Only courses with a grade of "B" or better may be counted towards the degree. If a grade of "B" or better is not attained in a course, the student must re-register and re-take the course (with a grade of "B" or better earned). If the course is not a required course, the student may substitute with another course rather than retaking the same course. A grade of B- does not meet the University criteria of "B" or better.

Should a student's grade point average fall below 3.00, the student is placed on academic probation and continuation in the program is subject to department review and possible termination.

If a student receives a grade of less than a B in two or more courses, they will be automatically terminated from the program. (B- is less than B)

### ***Satisfactory Progress toward Degree***

All graduate students are expected to make timely progress toward the completion of their respective degrees. Failure to do so puts the student at risk of probation, loss of funding, or termination of program, at the discretion of the department. For master's students pursuing the MA degree, "satisfactory progress" entails approval of the proposal by the eighth week of the quarter in which the student expects to complete **32** quarter hours of coursework. For MS/GISc students, "satisfactory progress" means approval of the *project* proposal by the eighth week of the quarter in which the student expects to complete **32** quarter hours. All master's students, regardless of program, are also expected to complete the degree within five years of matriculation. For doctoral students, the dissertation proposal must be approved by the eighth week of the quarter in which the student expects to complete **91** quarter hours (up to 45 of which may come from a previous master's degree), and the degree completed within seven years of the date of matriculation. Students placed on probation for failure to make satisfactory progress are granted an additional quarter to come into compliance, after which the student may have his/her funding withdrawn or be terminated from the program at the discretion of a committee composed of the Graduate Education Director, the Department Chair, and the student's advisor. ***Students anticipating that they will not meet "satisfactory progress" requirements by the end of the probationary quarter must formally petition the department's Graduate Education Director for extension of the probationary period before the eighth week of that quarter.*** The deadlines for completion of degrees are absolute – 5 years for the master's program and 7 years for the Doctoral program. **NO EXTENSIONS WILL BE GRANTED BY THE GEOGRAPHY DEPARTMENT.**

### ***Thesis, Project, and Dissertation Requirements/Plagiarism Prevention Policy***

The master's thesis or project and the doctoral dissertation are to be original texts prepared entirely by degree candidates. The University does not tolerate plagiarism for any reason. Plagiarism is the use of another person's words, ideas, or research findings without appropriate documentation, which includes citing the reference in the text and noting quotations and paraphrases clearly. This includes self-plagiarism. In addition, all degree candidates must understand that they alone do the editing of their theses and dissertations. It is acceptable for typists or colleagues to do minor editing as the result of proofreading (i.e.,

the correction of occasional spelling and grammatical errors). But it is entirely unacceptable for candidates to rely on anyone else to make any substantive or syntactical changes to a thesis, project, or dissertation in order to render the text in standard American English. A command of the basics of written English as might be expected for an advanced degree (master's or doctoral) is required of all degree candidates. In short, degree candidates must rely on no one other than themselves to carry out research and to prepare the text of their findings, interpretations, or creative activity. Writers of theses, projects, and dissertations requiring the use of quantitative data may resort to a special service for basic data processing but not for data analysis.

All final written projects such as dissertations, theses, capstone reports, etc. must be evaluated for plagiarism using TurnItIn.

1. The student completes the dissertation, thesis, project
2. The student runs the document through TurnItIn
3. TurnItIn produces a report
4. The student reviews the report
5. The student makes any necessary changes to the document
6. The final TurnItIn report is submitted with the document to the advisor.

### ***Change of an incomplete grade***

An Incomplete is given only when requirements for the course have not been completed because of circumstances beyond the student's control. Granting an Incomplete and finishing the course are arranged by agreement between the student and the instructor. An Incomplete is not used to permit the retaking of examinations or the completion of additional work to enhance the quality of the student's performance. Incomplete grades for all graduate students will appear on the transcript as an "I" for one year. During that year, they will have no impact on the grade point average. After one year, or at the time of graduation, remaining Incompletes will change to "F(I)" on the transcript and will be figured into the grade point average as an "F." To make up an incomplete, the student must obtain a "Change of Incomplete" form from the Registrar and submit it to the instructor along with the work remaining to be finished.

### ***Professionalism***

In addition to required Graduate Colloquium events, all students are expected to conduct themselves as professionals while in the graduate program which includes participating in and taking advantage of all of the professional/educational enhancement opportunities provided through the department such as research presentations and brown bag and other forms of departmental seminars, etc. Active involvement in other departmental athletic, recreational, and social events is also encouraged.

## **FINANCIAL AID**

A limited number of teaching and research assistantships are awarded each year to the most promising applicants. These carry a stipend plus *full* tuition scholarship. Most of the funding opportunities are Graduate Teaching Assistantships that involve assisting professors in introductory undergraduate geography courses.

Highly qualified applicants can be nominated to receive a Dean's fellowship which is for one year and carries a full-tuition scholarship. In addition, federal loan and work-study programs are available for qualified students to assist with their educational expenses. More information about these financial aid opportunities is available from the Office of Financial Aid (303-871-2681). The Department of Geography & the Environment also maintains the Kuhaida Fund, from which small loans are made to graduate students needing additional financial assistance. Interested students should contact the Department Chair for further information. Lastly, part-time employment positions are often available for interested graduate students, many in the form of paid internships through federal, state or local agencies. These offer not only financial assistance but also on-the-job experience.

## **GUIDELINES FOR GRADUATE TEACHING ASSISTANTS (GTAs)**

The acceptance of a GTA position provides an opportunity to develop your teaching and communication skills and to reinforce your knowledge of various sub-fields of geography. It also carries with it considerable responsibility and obligation to maintain the quality of instruction at the introductory course level. To ensure a high quality of teaching, some procedural standardization is necessary. The expectations, however, will vary with the position and the needs of the faculty instructor. Generally speaking, you will be expected to attend class consistently, check out and operate audio-visual equipment, distribute class materials, grade coursework (lab exercises, writing assignments, quizzes and exams), and teach one or more laboratory/ discussion sections per week. The specific duties of your position will be explained to you by the faculty member supervising the course.

GTA performance is measured in two ways – a standardized student evaluation form, filled out by the students at the end of each quarter, and an instructor evaluation (departmental review), completed by the faculty in charge of the course. Both are considered important in gauging your teaching competence, and the renewal of your funding is dependent in part on meeting or exceeding minimum standards as established by the department. GTAs must obtain a “good” or better on all the evaluation questions given in the instructor evaluation form (4 = ‘Excellent’, 3= ‘Good’, 2= ‘Fair/needs improvement’, 1 = ‘Poor/inadequate’). A copy of the departmental review form can be found at the end of this section of the handbook.

GTAs are expected to schedule three “office hours” per week, and should be available at those times to meet with students to discuss assignments, provide clarification of course content, accept and return labs and exercises, etc. GTAs should also be prepared to meet several times during the quarter with the instructor or course coordinator and other GTAs to discuss progress in the course and plan future activities.

GTAs must treat students in a fair, equitable, and professional manner at all times. In courses with more than one GTA, the teaching assistants should make every effort to maintain consistency of grading standards and interpretation/enforcement of course policies. If a GTA has any questions regarding interpretation or enforcement of such policies (e.g. on attendance, make-up assignments, grading practices) he or she should consult the instructor before reaching a decision.

In accordance with University policy, GTAs must keep all unreturned, graded student work (papers, exams, labs, etc.) on file for two full years, and should make such work available to students at their request, in accordance with course policies. (Some instructors do not allow students to keep exams, but do permit them to review their work in the presence of the instructor or GTA.) GTAs must also keep accurate and detailed records of student performance in grade book and/or spreadsheet form, and maintain such records for two full years, should a student wish to see how he/she was evaluated in the course.

To maintain privacy, GTAs must not post grades by student name where they are available to the general public. If a GTA wishes to post grades in a public place (e.g. on an office door, outside a classroom), a truncated version of the student number, or a student “alias” should be used instead.

GTAs are expected to maintain at least a **3.5** GPA in their coursework, make exemplary progress toward their degrees (both in coursework and progress towards research milestones such as proposal defenses), and to carry out all obligations of their assistantship in a manner deemed acceptable by the department. A GTA who fails to conform to any of these expectations risks loss of funding, probation, or termination of program.

Financial aid and assistantship awards are made on a competitive basis. Each year our department receives far more applications for admission and requests for financial aid than we can accommodate. It is the policy of this department to continue to provide funding for students who demonstrate excellent scholarship, make timely progress toward the completion of their degree, contribute fully to department culture, and perform assistantship duties in an exemplary manner. Awards are reviewed on a quarterly basis, and are extended to a total of two years for master’s candidates and three years for doctoral candidates, assuming all of the aforementioned conditions are



met. If any of these conditions is not met, the Department reserves the right to withhold or place conditions on a funding award. A departmental GTA evaluation committee meets on a quarterly basis to evaluate GTA performance. Typically, any GTA who is not meeting expectations will receive a written letter of warning which informs the student of why he or she has been identified as not meeting expectations and makes suggestions as to how to improve and meet expectations. If these expectations are not met in any subsequent quarters, the GTA may receive a second letter that rescinds their appointment as a GTA.

### **Professional Development**

We encourage our graduate students to attend international, national, and regional conferences because this is part of professional development. We also realize that unexpected family/personal issues crop up from time to time that will require your absence. You must plan your conference attendance/personal absence with the professor for whom you are the TA prior to your absence and travel.

## **FREQUENTLY USED FORMS**

Throughout your program, you will be required to adhere to policies and procedures established by the Office of Graduate Education. Complete policies and other important student information can be found on the Graduate Student Resources page at:

<http://www.du.edu/learn/graduates/studentresources.html> .

Some Office of Graduate Education forms include:

- [Continuous Enrollment Form](#) (must be completed every fall once student has completed all degree requirements except thesis/dissertation).
- [Course Substitution or Waiver Approval Form](#) (must be completed when a course is meeting the requirements for a different course)
- [Medical Leave of Absence Form](#)
- [Leave of Absence \(Personal Form\)](#)
- Application for Re-admission (must be completed when a student has not been registered for one quarter)

In some quarters, you will be required to submit forms to the Registrar's Office in order to complete your registration. These forms can be found on the "Frequently Used Forms" section of the Registrar's page at: <http://www.du.edu/registrar/forms/index.html> .

Some Registrar's Office forms include:

- [Independent Study, Directed Study, Independent Research Form](#)
- [Experiential Learning \(Internship\) Registration Form](#)

As you near graduation, there are a number of policies and procedures you should become familiar with. Additional information can be found at: <http://www.du.edu/currentstudents/graduates/graduationinformation.html> .

Some of these forms include:

- [Thesis/Dissertation Oral Defense Committee Recommendation Form](#) (submit to Office of Graduate Education no later than 30 days following thesis or dissertation proposal approval)
- [Schedule of Oral Defense](#) (submit to Office of Graduate Education four weeks prior to oral defense)
- Application for Graduation (completed on Pioneerweb)

## ADVISOR ACCEPTANCE FORM

Submit completed form to:

Dr. Matthew Taylor  
Graduate Director  
Department of Geography  
University of Denver  
Denver, CO 80208

Graduate Student Name: \_\_\_\_\_

Graduate Student Program: \_\_\_\_\_

Please acquire the appropriate faculty signature below.

- I agree to serve as Advisor to the student named above.

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

- I decline to serve as Advisor to the student named above.

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

## EVALUATION OF TEACHING For Graduate Teaching Assistants

Name of TA:

Name of Coordinator/Instructor:

Course:

Term:

Please indicate the quality of the TA's effectiveness in each of the following by using this code. Give no score if unobserved or not applicable.

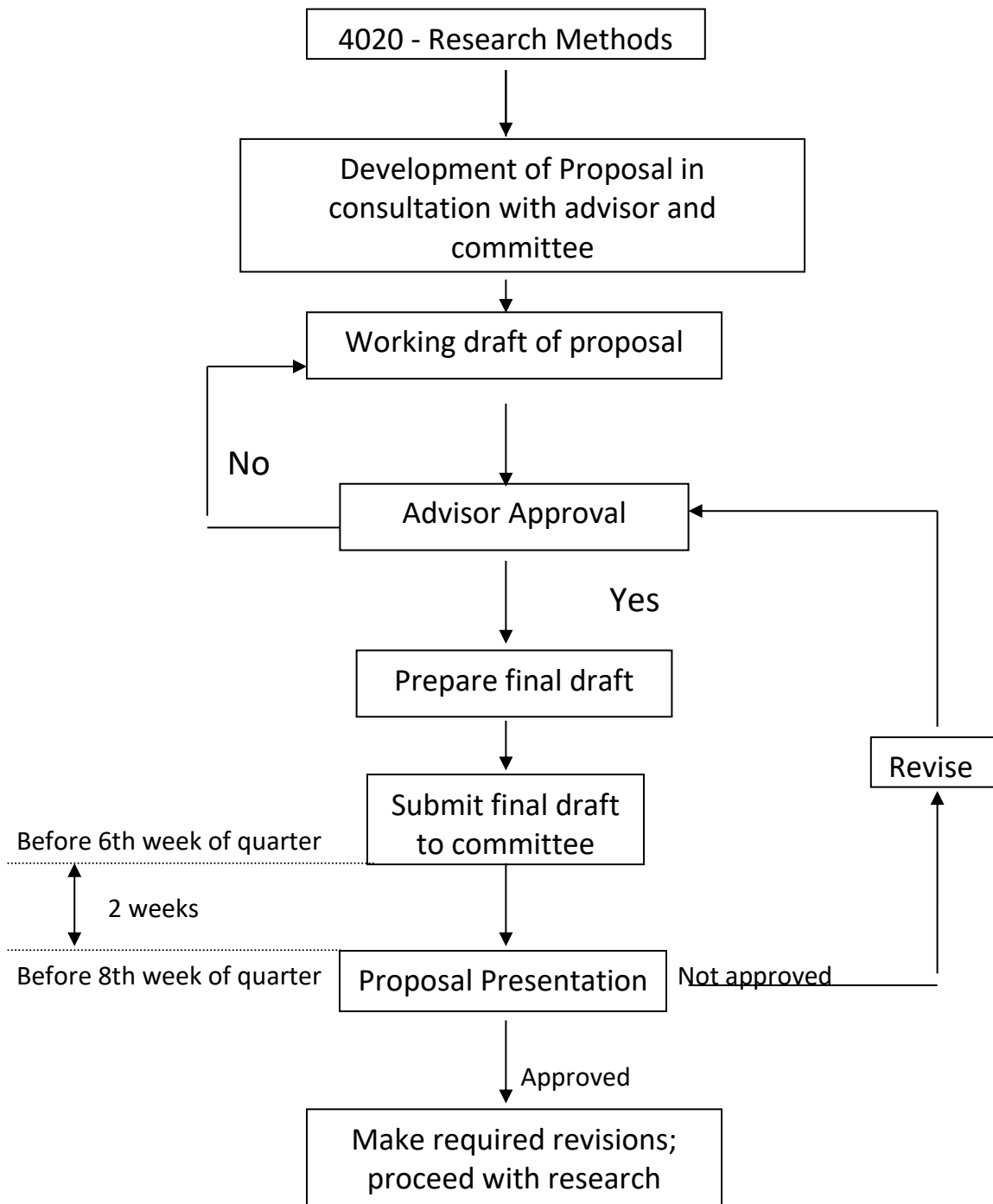
**4 = Very Good**  
**3 = Acceptable – Adequate**  
**2 = Some improvement needed**  
**1 = Unacceptable – much improvement needed**  
**NA = Not Applicable**

4	3	2	1	NA	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. The TA understands and supports objectives of class and instructor.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2. The TA demonstrates a good understanding of the course material.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3. The TA arrives for class on time.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4. The TA is adequately prepared for conducting labs/discussion.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5. The TA's presentations are well-organized.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6. The TA maintains an orderly lab/discussion environment.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7. The TA explains material at a level appropriate to the audience.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.	The TA encourages and understands questions and discussion from students.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	The TA completes grading assignments promptly and accurately.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.	The TA completes other assigned tasks promptly and accurately.
<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>	<b>NA</b>		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.	The TA regularly maintains office hours scheduled.
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	12.	OVERALL RATING: Please use the above scale to give an overall rating of the TA. This need NOT be an average of the ratings given in the other categories.

**COMMENTS:** Be sure to include comments on the TA's sense of responsibility regarding procedural matters, grading and coordination with the lecture.

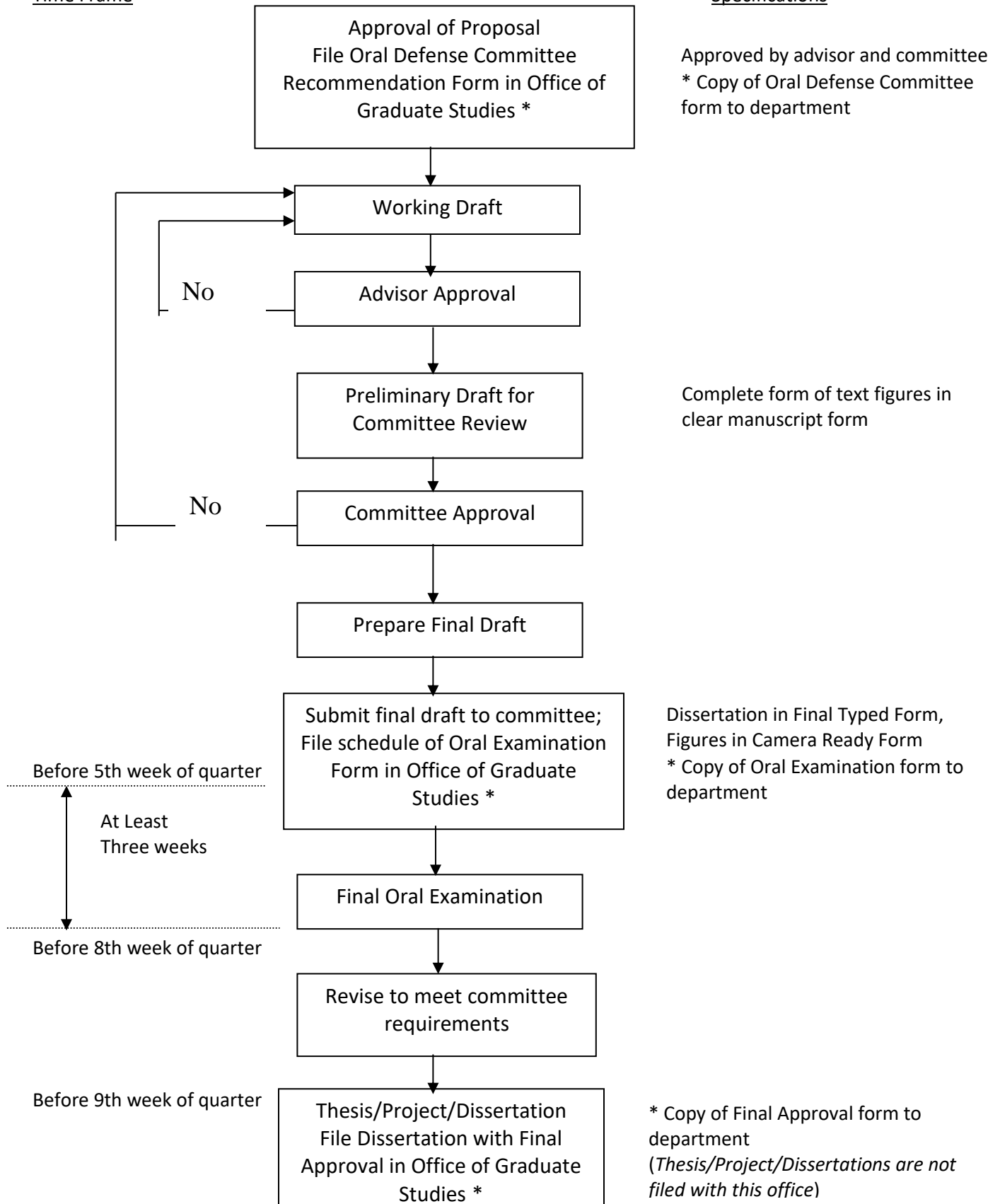
# Flow Chart for Proposals



## Flow Chart for Theses, Projects, and Dissertations

### Time Frame

### Specifications



[illegible]

<b>Geography Topical Courses</b> (offered in the Department of Geography & the Environment)						
<b>Geography Topical Courses</b>					<b>Credits</b>	
<u>QTR/YR</u>	<u>COURSE</u>	<u>TITLE</u>				
					minimum 32 hrs	
		<b>Hours Completed</b>		<b>0</b>	<b>Hours Needed</b>	<b>32</b>
					<b>Hours Completed</b>	<b>0</b>
					<b>Hours Remaining</b>	<b>32</b>
<b>Cognate Courses</b> (allied discipline(s) and/or equivalent hours of internship experience)						
<b>Cognate Courses</b>					<b>Credits</b>	
<u>QTR/YR</u>	<u>COURSE</u>	<u>TITLE</u>				
					minimum 12 hrs	
		<b>Hours Completed</b>		<b>0</b>	<b>Hours Needed</b>	<b>12</b>
					<b>Hours Completed</b>	<b>0</b>
					<b>Hours Remaining</b>	<b>12</b>
<b>Other Courses</b>					<b>Credits</b>	
<u>QTR/YR</u>	<u>COURSE</u>	<u>TITLE</u>				
					minimum 16 hrs	
		<b>Hours Completed</b>		<b>0</b>	<b>Hours Needed</b>	<b>16</b>
					<b>Hours Completed</b>	<b>0</b>
					<b>Hours Remaining</b>	<b>16</b>
<b>NOTE: STUDENTS ARE REQUIRED TO MEET WITH THEIR ADVISOR EVERY QUARTER AND ARE RESPONSIBLE FOR INDICATING WHICH COURSES MEET TOPICAL, COGNATE, AND OTHER COURSE REQUIREMENTS. COURSES NOT INDICATED AND APPROVED BY ADVISOR WILL NOT COUNT TOWARDS THE DEGREE. EACH CATEGORY BELOW SHOULD INDICATE 0 IN HOURS REMAINING TO BE APPROVED FOR GRADUATION.</b>						
Tools:						
Seminars:						
Residency Completed:						
Cognate:						
Committee:						
<b>Proposal Presentation (due with at least 91 hours of coursework):</b>						
Topic:						
Comprehensive Exam:						
Advanced to Candidacy:						
Final Exam:						
NOTE: Degree Program Expires <u>7</u> years from Matriculation Start Date						SUMMER 2025
Please review this summary and report any discrepancies/omissions to Dr. Taylor as soon as possible.						



<u>University of Denver</u>		<u>Department of Geography &amp; the Environment</u>						<b>MA in Geography</b>	
Name:		ID #							
<b><u>DEGREE PROGRESS SUMMARY</u></b>									
Matriculation:	Fall 2018				Advisor:	Taylor	(advisor signature)		
Emphasis:									
<b><u>RUNNING TOTAL SUMMARY</u></b>									
						Total Credits Required to be taken at DU for Degree	45		
						Credits Completed	0		
						Total Hours Remaining	45		
						Credits Currently Registered ( <i>taking this quarter</i> )	0		
<b>**Waived courses only count as class taken; required credits will still need to be fulfilled.**</b>									
<b>DU COURSES COMPLETED TO DATE -Geography Courses (offered by the Department of Geography &amp; the Environment)</b>									
<u>QTR/YR</u>	<u>COURSE</u>	<u>TITLE</u>			<u>CREDIT</u>	<u>GRADE</u>	<u>POINTS</u>		
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					<b>TOTALS</b>	<b>0</b>			<b>0</b>
							#DIV/0!	GPA	
<b><u>CURRENT REGISTRATION</u></b>									
<u>QTR/YR</u>	<u>COURSE</u>	<u>TITLE</u>			<u>CREDIT</u>				
					<u>TOTAL</u>		0		
<b><u>REQUIREMENT SUMMARY</u></b>									
<b><u>Required courses</u></b>					<b><u>Credits</u></b>	<b><u>Qtr/Yr</u></b>			
GEOG 3000 Advanced Geog Stats						4			
GEOG 4000 Fundamental Geog Perspectives						4			
GEOG 4020 Research Methods						4			
Hours Completed					0	Hours Needed		12	
						Hours Completed		0	
						Hours Remaining		12	



UNIVERSITY OF DENVER  
DEPARTMENT OF GEOGRAPHY  
MASTER OF SCIENCE IN GEOGRAPHIC INFORMATION SCIENCE  
DEGREE PROGRESS FORM FALL 2018-ONCAMPUS

NAME: I.D. Number PHONE: MATRICULATION: ADVISOR:	Fall 2018
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**REQUIRED COURSES**

COURSE	TITLE	CREDITS	GRADE	POINTS	QUARTER	COMPLETED*
GEOG 3000	Advanced Geographic Statistics	4		0		
GEOG 3010	Geographic Information Analysis	4		0		
GEOG 3140	Database Design	4		0		
GEOG 3150	GIS Project Management	4		0		
GEOG 3200	Remote Sensing	4		0		
GEOG 4020	Research Methods	4		0		
GEOG 4993	Project	4		0		
<b>TOTALS</b>		<b>28</b>		<b>0</b>		<b>0</b>

**ELECTIVES**

COURSE	TITLE	CREDITS	GRADE	POINTS	QUARTER	COMPLETED*
GEOG 4000	Fund Geog Perspectives (strongly recommended)	4		0		
				0		
				0		
				0		
				0		
				0		
<b>TOTALS</b>		<b>20</b>		<b>0</b>		<b>0</b>

**Note:** Each student must take a minimum of 8 credit hours of electives in geography from any of the GEOG course at 3000 level or above.  
At least **24-quarter hours** counted towards the degree must be taken within the Department of Geography at the University of Denver.

**TRANSFERRED CREDITS**

COURSE	TITLE	CREDITS	GRADE
<b>TOTAL</b>		<b>0</b>	

**Note:** No more than 24-quarter hours will be accepted in transfer from the University College GIS Certificate Program  
No more than 10- quarter hours will be accepted in transfer from another institution.  
\* If the student is transferring credits from another institution and University College credits, both must add up to a maximum of 24-quarter hours, but only a maximum of 10-quarter hours will be accepted from another institution.

University College  
Transfer accepted

- GIS 4700 Introduction to Remote Sensing, 4.0 hrs for GEOG 3200 Remote Sensing
- GIS 3140 GIS Database Design, 4.0 hrs for GEOG 3140 Database Design\*
- GIS 4150 GIS Project Design, 4.0 hrs for GEOG 3150 GIS Project Management\*\*

<b>TOTAL CREDITS REQUIRED:</b>	<b>48</b>
<b>TOTAL CREDITS COMPLETED:</b>	<b>0</b>
<b>GPA</b>	<b>#DIV/0!</b>

Program approved by:
Signature:
Date:

Graduate committee:	Name	Accepted Signature/Date
Member 1:		
Member 2:		
Member 3:		
Member 4:		

**UNIVERSITY OF DENVER  
DEPARTMENT OF GEOGRAPHY  
MASTER OF SCIENCE IN GEOGRAPHIC INFORMATION SCIENCE  
ONLINE DEGREE PROGRESS FORM**

NAME: I.D. Number EMAIL: MATRICULATION: TRACK: ADVISOR:	<b>Online</b>
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**REQUIRED COURSES**

COURSE	TITLE	CREDITS	GRADE	POINTS	QUARTER	COMPLETED*
<b>GEOG3000</b>	Advanced Geographic Statistics	4		0		
<b>GEOG3010</b>	Geographic Information Analysis	4		0		
<b>GEOG3140</b>	Database Design	4		0		
<b>GEOG3150</b>	GIS Project Management	4		0		
<b>GEOG3200</b>	Remote Sensing	4		0		
<b>TOTALS</b>		<b>20</b>		<b>0</b>		<b>0</b>

**CAPSTONE**

COURSE	TITLE	CREDITS	GRADE	POINTS	QUARTER	COMPLETED*
<b>GEOG 4020</b>	Research Methods	4		0		
<b>GEOG 4993</b>	Project	4		0		
<b>TOTALS</b>		<b>8</b>		<b>0</b>		<b>0</b>

**ELECTIVES**

COURSE	TITLE	CREDITS	GRADE	POINTS	QUARTER	COMPLETED*
				0		
				0		
				0		
				0		
				0		
<b>TOTALS</b>		<b>20</b>		<b>0</b>		<b>0</b>

**Geography Elective Courses should be chosen from the following list:**

GEOG 3040 GPS for Resource Mapping (hybrid field/online course)  
 GEOG 3410 Urban Applications in GIS  
 GEOG 3860 GIS Applications for Natural Resources

Students may take choose elective courses from any University College GIS certificate program course (EXCEPT GIS 4101 and GIS 4110) and not already used to meet a required course

GIS 4101 & GIS 4110 are pre-requisite courses and don't count towards this degree.

- Note:**
- Students in the MS online program should only register for online courses. Exceptions to take on campus courses must be approved by the Director of the MS online program
  - At least 24-quarter hours counted towards the degree must be taken within in the Department of Geography & the Environment at the University of Denver
  - No more than 24-quarter hours will be accepted in transfer from the University College GIS Certificate Program
  - No more than 10- quarter hours will be accepted in transfer from another institution.
  - If the student is transferring credits from another institution and University College credits, both must add up to a maximum of 24-quarter hours, but only a maximum of 10-quarter hours will be accepted from another institution.

<b>TOTAL CREDITS REQUIRED:</b>	<b>48</b>
<b>TOTAL CREDITS COMPLETED:</b>	<b>0</b>
<b>GPA</b>	<b>#DIV/0!</b>

Program approved by:
Signature:
Date:

# Schedule of Classes

Department: **GEOGRAPHY AND THE ENVIRONMENT**

Quarter: **FALL 2018**

CRN #	Subj Code	Course Numbe	Sec	Credit Hours	Title	Prerequisite	Max. Enrol	Sched Type	Begin Time	End Time	Meeting Days	Instructor	Room/ Type
					Field Quarter: all students must register for the entire 4 course block:								
3515	GEOG	3930	1	4	Cultural Geography Seminar Co-req: ENVI	Department Approval	12	O/L	16:00	18:00	TR	Taylor	BW 123
1766	GEOG	3550	1	3	Topics : Paleoenvironment Co-req: ENVI	Department Approval	12	O/L	16:00	18:00	TR	Sullivan	BW 123
3235	GEOL	2400	1	4	2660, GEOL 2400, GEOG 3930	Department Approval	12	O/L	14:00	17:50	F	Kerwin	Olin 142
1589	ENVI	2660	1	5	Sonora & Baja Mexico Co-req: GEOG	Department Approval	12	O/L	10:00	12:00	TR	Sullivan	BW 122
2452	GEOG	2020	1	4	3550, GEOL 2400, GEOG 3930		24	L	10:00	11:30	MW	Hick	BW 126
					Cartography			B	11:30	1:30	W	Hick	BW 126
3146	GEOG	2100	1	4	Lab			L	10:00	11:30	TR	Kuzera	BW 126
					Intro GIS			B	11:30	13:30	R	Kuzera	BW 126
4524	GEOG	2401	1	4	The Human Population: Patterns, Processes, & Problematics		30	L	14:00	15:30	T	Sutton	SH 496
					Lab			B	14:00	15:30	R	Sutton	BW 125
					Lab			B	14:00	15:30	R	Sutton	BW 126
2543	GEOG	2500	1	4	Sustainability and Human Society		24	L	10:00	11:50	TR	Nyantakyi-Frimpong	BW 124
					Prereq: must be GEOG or ENVI major or SUST minor to enroll								
3147	GEOG	2550		4	Issues in Sustainability		15	L	10:00	11:50	TR	Staff	Olin 142
					Note: Capstone course for Sustainability minors with Senior standing. Perminssion of instructor required.								
2856	GEOG	3010	1	4	Geographic Information Analysis		15	ONL	ONL	ONL	ONL	Hick	ONLINE
1883	GEOG	3140	1	4	Database Design		16	L	12:00	13:50	TR	Zhang	BW 125
2265	GEOG	3150	1	4	GIS Project Management		15	ONL	ONL	ONL	ONL	Staff	ONLINE
2545	GEOG	3200	1	4	Remote Sensing		24	L	14:00	15:50	MW	Powell	BW 126
								B	11:00	11:50	F	Powell	BW 126
3517	GEOG	3230	1	4	Advanced Remote Sensing		16	L	16:00	17:50	MW	Powell	BW 125
2857	GEOG	3340	1	4	Geographies of Migration		20	L	12:00	13:50	MW	Moran-Taylor	BW 124
2858	GEOG	3400	1	4	Urban Landscapes		18	L	12:00	13:50	TR	Goetz	BW 124
3516	GEOG	3520	1	4	Geography of Soils		11	L	14:00	17:50	W	Daniels	SH 253
4549	GEOG	3750	1	4	Environmental Conflicts and Natural		15	L	14:00	15:50	TR	Staff	Olin 142
1318	GEOG	4000	1	4	Fundamental Geographic Perspectives		15	L	12:00	15:50	F	Daniels	BW 123
2266	GEOG	4020	1	4	Research Methods		15	ONL	ONL	ONL	ONL	Staff	ONLINE
3309	GEOG	4400	1	4	Urban Landscapes		6	L	12:00	13:50	TR	Goetz	BW 124

1319	GEOG	4900	1	1	Graduate Colloquium		50	L	16:00	18:00	R	Staff	BAUD 101
	GEOG	3991		ARR	Independent Study-Undergraduate				ARR		ARR	ARR	
	GEOG	3992		ARR	Directed Study - Undergraduate				ARR		ARR	ARR	
	GEOG	3999		ARR	Geographic Internship-Undergraduate				ARR		ARR	ARR	
	GEOG	4030		ARR	Advanced Field Research				ARR		ARR	ARR	
	GEOG	4040		ARR	Research Identification				ARR		ARR	ARR	
	GEOG	4991		ARR	Independent Study				ARR		ARR	ARR	
	GEOG	4992		ARR	Directed Study-Graduate				ARR		ARR	ARR	
2859	GEOG	4993			Capstone or Project		15	ONL	ONL	ONL	ONL	Hick	ONLINE
	GEOG	4995		ARR	Independent Research				ARR		ARR	ARR	
	GEOG	4999		ARR	Geographic Internship-Graduate				ARR		ARR	ARR	
	GEOG	5991		ARR	Independent Study - PhD				ARR		ARR	ARR	
	GEOG	5995		ARR	Independent Research				ARR		ARR	ARR	
1696	EALC	2001	1	2	Local & Regional Env'l Issues		25	L	16:00	17:50	T	Sullivan	SH 335
4636	FSEM	1111		4	First Year Seminar		12	L	14:00	15:50	MW	Hamann	BW 124
4650	FSEM	1111		4	First Year Seminar		12	L	10:00	11:50	TR	Sutton	BW 123
4733	FSEM	1111		4	First Year Seminar		12	L	12:00	13:50	TR	Trigoso	BW 123
4658	FSEM	1111		4	First Year Seminar		12	L	10:00	11:50	MF	Hazen	BW 123
4632	FSEM	1111		4	First Year Seminar		12	L	10:00	13:50	F	Goetz	BW 124
1950	GEOG	1201	1	4	Env. Systems - Weather		60	L	9:00	9:50	MWF	Keables	Olin 105
1951			2		Lab		15	B	14:00	15:50	M	Staff	BW 16
1952			3		Lab		15	B	8:00	9:50	T	Staff	BW 16
1953			4		Lab		15	B	14:00	15:50	W	Staff	BW 16
1954			5		Lab		15	B	8:00	9:50	R	Staff	BW 16
1955	GEOG	1201	6	4	Env. Systems - Weather		60	L	10:00	10:50	MWF	Hamann	BAUD-101
1956			7		Lab		15	B	16:00	17:50	M	Staff	BW 16
1957			8		Lab		15	B	10:00	11:50	T	Staff	BW 16
1958			9		Lab		15	B	16:00	17:50	W	Staff	BW 16
1959			10		Lab		15	B	10:00	11:50	R	Staff	BW 16
1960	GEOG	1216	1	4	Our Dynamic Earth (lecture)		92	L	2:00	3:30	MW	Kuzera	Olin 105
1961			2		Lab		23	B	16:00	17:50	M	Staff	Olin 142
1962			3		Lab		23	B	8:00	9:50	T	Staff	Olin 142
1963			4		Lab		23	B	16:00	17:50	W	Staff	Olin 142
1964			5		Lab		23	B	8:00	9:50	R	Staff	BW 124
2491	GEOG	1216	6	4	Our Dynamic Earth (lecture)		92	L	2:00	3:30	TR	Hazen	BAUD-101
2492			7		Lab		23	B	16:00	17:50	T	Staff	Olin 142
2493			8		Lab		23	B	8:00	9:50	W	Staff	Olin 142
2494			9		Lab		23	B	8:00	9:50	R	Staff	Olin 142
2495			10		Lab		23	B	8:00	9:50	F	Staff	Olin 142
3921	GEOG	1216	11	4	Our Dynamic Earth (lecture)		40	L	14:00	15:30	TR	Kuzera	BAUD 103
3922			12		Lab		20	B	8:00	9:50	F	Staff	BW 124
3923			13		Lab		20	B	16:00	17:50	W	Staff	BW 124
1965	GEOG	1264	1	4	Global Environmental Change: Climate Dynamics (lecture)		40	L	12:00	13:50	MW	Trigoso	BAUD-103
1966			2		Lab		20	B	12:00	13:50	T	Staff	BW 16
1967			3		Lab		20	B	14:00	15:50	T	Staff	BW 16
1995	GEOG	1410	1	4	People, Places & Landscapes		64	L	10:00	11:50	MW	Nyantakyi-Frimpong	SH 253
2415	GEOG	1410	2	4	People, Places & Landscapes		64	L	10:00	11:50	TR	Hazen	SH 253

# Schedule of Classes

Department: **GEOGRAPHY AND THE ENVIRONMENT**

Quarter: **Winter 2019**

CRN #	Subj Code	Course Numbe	Sec	Credit Hours	Title	Prerequisite	Max. Enrol	Sched Type	Begin Time	End Time	Meeting Days	Instructor	Room/ Type
	GEOG	2000	1	4	Geographic Statistics	Must be junior or senior st	24	L	10:00	11:30	MW	Zhang	BW 126
								B	11:30	13:30	W	Zhang	BW 126
	GEOG	2020	1	4	Cartography		24	L	14:00	15:30	TR	Keables	BW 126
					Lab			B	15:30	17:30	T	Keables	BW 126
	GEOG	2100	1	4	Intro to GIS		24	L	10:00	11:30	TR	Hick	BW 126
					Lab		24	B	11:30	13:30	R	Hick	BW 126
	GEOG	2500	1	4	Sustainability and Human Society	minor, geography or environmental science	24	L	10:00	11:50	MW	Staff	BW 124
	GEOG	2550	1	4	Issues in Sustainability	Must have junior or senior status; GEOG 2500	24	L	10:00	11:50	TR	Staff	Sturm
	GEOG	2700	1	4	Contemporary Environmental Issues		20	L	12:00	13:50	MW	Kerwin	Olin 142
	GEOG	3000	1	4	Advanced Geog Statistics -	MS Online Students	20	O/D	ONL	ONL	ONL	Staff	ONLINE
	GEOG	3010	1	4	Geographic Information Analysis		16	L	10:00	11:50	MW	Kuzera	BW 125
	GEOG	3140	1	4	GIS Database Design		20	O/D	ONL	ONL	ONL	Staff	ONLINE
	GEOG	3150	1	4	Project Management		15	O/D	ONL	ONL	ONL	Hick	Online
	GEOG	3200	1	4	Remote Sensing		16	L	10:00	11:50	TR	Powell	BW 125
					Lab			B	10:00	10:50	F	Powell	BW 125
	GEOG	3240(ne	1	4	Geoscripting in R		16	L	16:00	17:50	MW	Powell	BW 125
	GEOG	3420	1	4	Urban and Regional Planning		24		12:00	13:50	TR	Goetz	BW 124
	GEOG	3640	1	4	Climate Change and Society		24	L	14:00	15:50	TR	Trigoso	Olin 142
	GEOG	3775	1	4	Geography of Health		24	L	10:00	11:50	TR	Hazen	BW 124
	GEOG	3870	1	4	Water Resources and Sustainability		15	L	14:00	15:50	MW	Hamann	BW 124
	GEOG	4020	1	4	Research Methods		15	L	18:00	21:30	T	Taylor	BW 123
	GEOG	4040	1	ARR	Research Topic Identification				ARR		ARR	ARR	
	GEOG	4900	1	0	Graduate Colloquium		50	L	16:00	17:50	R	Boschmann	BAUD 101
	GEOG	3991		ARR	Independent Study-Undergraduate				ARR		ARR	ARR	
	GEOG	3999		ARR	Geographic Internship-Undergraduate				ARR		ARR	ARR	
	GEOG	4950		ARR	Advanced Field Research				ARR		ARR	ARR	
	GEOG	4991		ARR	Independent Study - Graduate				ARR		ARR	ARR	
	GEOG	4992		ARR	Directed Study - Graduate				ARR		ARR	ARR	
	GEOG	4995		ARR	Independent Research				ARR		ARR	ARR	

	<b>GEOG</b>	<b>4999</b>		ARR	Geographic Internship-Graduate				ARR		ARR	ARR	
	<b>GEOG</b>	<b>5991</b>		ARR	Independent Study - PhD				ARR		ARR	ARR	
	<b>GEOG</b>	<b>5995</b>		ARR	Independent Research				ARR		ARR	ARR	
	<b>ENVI</b>	<b>3000</b>	1	4	<b>Environmental Law</b>		24	L	16:00	17:50	TR	<b>Staff</b>	<b>Olin 142</b>
	<b>EALC</b>	<b>2002</b>	1	2	<b>Impact-Dev. On the Environment</b>		24					<b>Sullivan</b>	
	<b>ENVI</b>	<b>3991</b>		ARR	Independent Study				ARR		ARR	ARR	
	<b>ENVI</b>	<b>3995</b>		ARR	Undergraduate Research				ARR		ARR	ARR	
	<b>GEOG</b>	<b>1202</b>	1	4	<b>Env. Systems - Hydrology</b>		92	L	9:00	9:50	MWF	<b>Kerwin</b>	<b>Olin 105</b>
			2		Lab		23	B	14:00	15:50	M	<b>Staff</b>	<b>BW 16</b>
			3		Lab		23	B	8:00	9:50	T	<b>Staff</b>	<b>BW 16</b>
			4		Lab		23	B	14:00	15:50	W	<b>Staff</b>	<b>BW 16</b>
			5		Lab		23	B	8:00	9:50	R	<b>Staff</b>	<b>BW 16</b>
	<b>GEOG</b>	<b>1202</b>	6	4	<b>Env. Systems - Hydrology</b>		92	L	10:00	10:50	MWF	<b>Hamann</b>	<b>BAUD-101</b>
			7		Lab		23	B	16:00	17:50	M	<b>Staff</b>	<b>BW 16</b>
			8		Lab		23	B	10:00	11:50	T	<b>Staff</b>	<b>BW 16</b>
			9		Lab		23	B	16:00	17:50	W	<b>Staff</b>	<b>BW 16</b>
			10		Lab		23	B	10:00	12:00	R	<b>Staff</b>	<b>BW 16</b>
	<b>GEOG</b>	<b>1217</b>	1	4	<b>Our Dynamic Earth (lecture)</b>		92	L	14:00	15:30	MW	<b>Kuzera</b>	<b>Olin 105</b>
			2		Lab		23	B	16:00	17:50	M	<b>Staff</b>	<b>Olin 142</b>
			3		Lab		23	B	8:00	9:50	T	<b>Staff</b>	<b>Olin 142</b>
			4		Lab		23	B	16:00	17:50	W	<b>Staff</b>	<b>Olin 142</b>
			5		Lab		23	B	8:00	9:50	R	<b>Staff</b>	<b>BW 124</b>
	<b>GEOG</b>	<b>1217</b>	6	4	<b>Our Dynamic Earth (lecture)</b>		92	L	14:00	15:30	TR	<b>Hazen</b>	<b>BAUD 101</b>
			7		Lab		23	B	16:00	17:50	T	<b>Staff</b>	<b>BW 124</b>
			8		Lab		23	B	8:00	9:50	W	<b>Staff</b>	<b>Olin 142</b>
			9		Lab		23	B	8:00	9:50	R	<b>Staff</b>	<b>Olin 142</b>
			10		Lab		23	B	8:00	9:50	F	<b>Staff</b>	<b>Olin 142</b>
	<b>GEOG</b>	<b>1217</b>	11	4	<b>Our Dynamic Earth (lecture)</b>		40	L	12:00	13:50	TR	<b>Hazen</b>	<b>BAUD 103</b>
			12		Lab		20	B	8:00	9:50	F	<b>Staff</b>	<b>BW 124</b>
			13		Lab		20	B	16:00	17:50	W	<b>Staff</b>	<b>BW 124</b>
	<b>GEOG</b>	<b>1265</b>	1	4	<b>Global Environmental Change: Terrestrial</b>	Honors students only.	40	L	12:00	1:30	MW	<b>Sullivan</b>	<b>BW 124</b>
			4		Lab		20	B	12:00	13:50	T	<b>Staff</b>	<b>BW 16</b>
			4		Lab		20	B	14:00	13:50	T	<b>Staff</b>	<b>BW 16</b>
	<b>GEOG</b>	<b>1410</b>	1	4	<b>People, Places &amp; Landscapes</b>		64	L	10:00	11:50	MW	<b>Trigoso</b>	<b>SH 253</b>
	<b>GEOG</b>	<b>1410</b>	2	4	<b>People, Places &amp; Landscapes</b>		64	L	10:00	11:50	TR	<b>Nyantakyi-Frimpong</b>	<b>SH 253</b>



# Schedule of Classes

Department: **GEOGRAPHY AND THE ENVIRONMENT**

Quarter: **Spring 2019**

CRN #	Subj Code	Course Numbe	Sec	Credit Hours	Title	Prerequisite	Max. Enrol	Sched Type	Begin Time	End Time	Meeting Days	Instructor	Room/ Type
	GEOG	2000			Geographic Statistics	Must be junior or senior	24	L	10:00	11:30	TR	Boschmann	BW 126
					Lab		24	B	11:30	13:30	R	Boschmann	BW 126
	GEOG	2100	1	4	Intro to GIS		24	L	10:00	11:30	MW	Zhang	BW 126
					Lab		24	B	11:30	1:30	W	Zhang	BW 126
	GEOG	2500	1	4	Sustainability and Human Society	Must be sustainability minor,	24	L	10:00	11:50	MW	Trigoso	BW 124
	GEOG	2511	1	4	Principles of Sustainability	Must be in the Honors Program	15	L	10:00	11:50	TR	Trigoso	BW 123
	GEOG	2550	1	4	Current Issues in Sustainability	Must have junior or senior status; GEOG 2500	24	L	10:00	11:50	TR	Nyantakyi-Frimpong	BW 124
	GEOG	2990	1	0	Professional Development for Geographers	Required for graduation	30	L	10:00	11:50	F	Sutton	BW 124
	GEOG	3000	1	4	Advanced Geographic Statistics		15		12:00	13:50	TR	Kuzera	BW 125
	GEOG	3010	1	4	Geographic Information Analysis		15		ONL	ONL	ONL	Hick	ONLINE
	GEOG	3130	1	4	Advanced GIS	Completion of at least one introductory GIS course	16		14:00	15:30	MW	Li	BW 125
					Lab				15:30	17:30	W	Li	BW 125
	GEOG	3150	1	4	GIS Project Management		15		ONL	ONL	ONL	Staff	ONLINE
	GEOG	3170x	1	4	Geospatial Design for Sustainability		15	L	14:00	13:50	TR	Powell	BW 125
	GEOG	3200	1	4	Remote Sensing		24	E	14:00	15:30	MW	Sutton	BW 126
					Lab				15:30	17:30	W	Sutton	BW 126
	GEOG	3310	1	4	Cult/Nature/Econ-Human Ecology		20	L	12:00	13:50	MW	Moran-Taylor	BW 124
	GEOG	3445	1	4	Sustainability & Transportation		24	L	12:00	13:50	TR	Goetz	BW 124
	GEOG	3610	1	4	Climatology	One of the following: C	24	L	12:00	13:50	TR	Keables	Olin 142
	GEOG	3800	1	4	Geography of Colorado		24	L	12:00	13:50	MW	Sullivan	Olin 142
	GEOG	3890	1	4	Ecological Economics		16	L	10:00	11:50	MW	Sutton	BW 125
	GEOG	3910	1	4	Geomorphology		11	L	14:00	17:50	T	Daniels	BW 123
	GEOG	4020	1	4	Geographic Research Methodology		15			ONL	ONL	Staff	ONLINE
	GEOG	4701	1	4	Topics in Geography: Professional Writing		12	S	18:00	21:30	T	Taylor	BW 123
	GEOG	4900	1	0	Graduate Colloquium		50	L	16:00	17:50	R	Boschmann	BAUD 101

	GEOG	4993		4	Capstone Project		15			ONL	ONL	Hick	ONLINE
	GEOL	2020	1	4	Historical Geology	GEOG 1203 or permis	15	L	14:00	16:50	MW	Hamann	BW 124
	GEOL	3100	1	4	Environmental Geology	GEOG 1203 or permis	15	L	14:00	16:50	T	Kerwin	BW 124
					Lab				14:00	15:50	R	Kerwin	BW 124
	GEOG	3991		ARR	Independent Study-Undergraduate		IS		ARR		ARR	ARR	
	GEOG	3999		ARR	Geographic Internship-Undergraduate		IN		ARR		ARR	ARR	
	GEOG	4991		ARR	Independent Study - Graduate		IS		ARR		ARR	ARR	
	GEOG	4993		ARR	Capstone or Project		IN		ARR		ARR	Hick	
	GEOG	4995		ARR	Independent Research		IN		ARR		ARR	ARR	
	GEOG	4999		ARR	Geographic Internship-Graduate		IN		ARR		ARR	ARR	
	GEOG	5991		ARR	Independent Study - PhD		IS		ARR		ARR	ARR	
	GEOG	5995		ARR	Independent Research		IN		ARR		ARR	ARR	
	ENVI	3000	1	4	Environmental Law		24	L	16:00	17:50	TR	Brady	Olin 142
	EALC	2003	1	2	Energy in American Society		22	L				Sullivan	
	GEOG	1203	1		Env. Systems - Landforms		96	L	9:00	9:50	MWF	Sullivan	BAUD 101
			2		Lab		24	B	14:00	15:50	M	Staff	BW 16
			3		Lab		24	B	8:00	9:50	T	Staff	BW 16
			4		Lab		24	B	14:00	15:50	W	Staff	BW 16
			5		Lab		24	B	8:00	9:50	R	Staff	BW 16
	GEOG	1203	6	4	Env. Systems - Landforms		96	L	10:00	10:50	MWF	Hamann	BAUD 101
			7		Lab		24	B	16:00	17:50	M	Staff	BW 16
			8		Lab		24	B	10:00	11:50	T	Staff	BW 16
			9		Lab		24	B	16:00	17:50	W	Staff	BW 16
			10		Lab		24	B	10:00	11:50	R	Staff	BW 16
	GEOG	1218	1	4	Our Dynamic Earth (lecture)		92	L	14:00	15:30	MW	Kuzera	Olin 105
			2		Lab		23	B	16:00	17:50	M	Staff	Olin 142
			3		Lab		23	B	8:00	9:50	T	Staff	Olin 142
			4		Lab		23	B	16:00	17:50	W	Staff	Olin 142
			5		Lab		23	B	8:00	9:50	R	Staff	BW 124
	GEOG	1218	6	4	Our Dynamic Earth (lecture)		92	L	14:00	15:30	TR	Hazen	BAUD 101
			7		Lab		23	B	10:00	11:50	F	Staff	Olin 142
			8		Lab		23	B	8:00	9:50	W	Staff	Olin 142
			9		Lab		23	B	8:00	9:50	R	Staff	Olin 142
			10		Lab		23	B	8:00	9:50	F	Staff	Olin 142
	GEOG	1218	11	4	Our Dynamic Earth (lecture)		40	L	12:00	13:30	TR	Hazen	BAUD 103
			12		Lab		20	B	8:00	9:50	F	Staff	BW 124
			13		Lab		20	B	18:00	19:50	W	Staff	BW 124
	GEOG	1266	1	4	Global Environmental Change: Terre	Must be in the Honors Program	40	L	12:00	13:50	MW	Daniels	BAUD 103
			2		Lab		20	B	12:00	13:50	T	Staff	BW 16
			3		Lab		20	B	14:00	15:50	T	Staff	BW 16
	GEOG	1410	1	4	People, Places & Landscapes		64	L	10:00	11:50	MW	Boschmann	SH 253
	GEOG	1410	2	4	People, Places & Landscapes		66	L	10:00	11:50	TR	Hazen	SH 253