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Department Background

Geography is the study of natural Earth systems, human societies and the interaction between them. Geography bridges the human and physical sciences with an integrative perspective centered on the concepts of place and space, focusing on the role of geographic relationships in human, physical and coupled physical-human systems. The Department of Geography at the University of Utah was founded in 1947, and the Department’s graduate program was established in 1948.

The mission of the Department of Geography is as follows:
1. to discover new scientific knowledge about the Earth, including its human, physical and coupled physical-human systems; and the application of new quantitative geographic techniques to aid in that discovery,
2. to disseminate scientific knowledge about the Earth and related investigative techniques through high-quality teaching and research-based education and outreach; and
3. to provide professional and community service that contributes to a just and sustainable Earth.

The Department of Geography emphasizes scientific geography within three main focus areas, as well as their synergistic overlaps:
1. Urban/Economic Systems, including urbanization, transportation, economic geography, globalization, public health, natural and technological hazards, and demography;
2. Earth Systems Science, including biogeography, glaciology, hydrology, paleoecology, geomorphology, and climate science; and,
3. Geographic Information Science, including geographic information systems (GIS), remote sensing, cartography and geovisualization, spatial analysis and geocomputation.
Faculty
The Department currently has 13 regular faculty and 17 auxiliary faculty. Faculty and their areas of expertise are listed below.

Regular Faculty
Simon C. Brewer (Ph.D. Université d’Aix-Marseille I, 2002), Assistant Professor. Past and present climate change, paleoecology, environmental modeling, data mining and analysis

Andrea R. Brunelle (Ph.D. Oregon, 2002), Professor and Director of RED Lab. Paleoecology, fire history, and climate change.

Thomas J. Cova (Ph.D. University of California Santa Barbara, 1999), Professor, Director of CNTH, and Director of GIS Certificate Program. GIS, hazards, urban modeling, and transportation.

Philip E. Dennison (Ph.D. University of California Santa Barbara, 2003), Professor, Director of URSA Lab and Director of Graduate Studies. Hyperspectral, multispectral, and multitemporal remote sensing of vegetation, wildfire and fire danger modeling.

Richard R. Forster (Ph.D. Cornell, 1997), Professor and Associate Dean of the College of Social and Behavioral Science. Microwave remote sensing, application of radar interferometry to studies of glaciers and ice caps, remote sensing of snow packs and hydrology

Kathryn Grace (Ph.D. University of California Santa Barbara, 2008), Assistant Professor. Population studies/demography, international health and development, population-environment interactions and statistics

George F. Hepner (Ph.D. Arizona State, 1979), Professor and Director of Undergraduate Studies. Land resource analysis, geographic information analysis, computer mapping applications, hyperspectral remote sensing.

Richard M. Medina (Ph.D. University of Utah, 2009), Assistant Professor. GIS, spatial analysis, geography of terrorism and insurgent activity, complex systems in social and geographic spaces

Kathleen Nicoll (Ph.D. Arizona, 1998), Assistant Professor. Geomorphology, stratigraphy, geoarchaeology, arid lands.

Mitchell Power (Ph.D. University of Oregon, 2006), Assistant Professor, Director of the Power Paleoecology Lab and Curator of the Natural History Museum of Utah’s Garrett Herbarium. Historical biogeography, fire, paleoecology and paleoclimatology.

Neng Wan (Ph.D. Texas State University-San Marcos, 2011), Assistant Professor and Director of the Utah Geo-Health (UGH) Lab. GIS and spatial methods in understanding and solving environmental/health problems

Ran Wei (Ph.D. Arizona State University, 2013), Assistant Professor. GIS; urban and environmental planning; quantitative methods; spatial analysis; spatial optimization; infrastructure and transportation system

Yehua Dennis Wei (Ph.D. UCLA, 1998), Professor and Director of the Urban and Sustainability Research Lab. Economic geography and location theory, regional and urban development, spatial analysis, China.
Facilities
The Department of Geography includes several specialized facilities, listed below.

DIGIT Lab: Established in 1987, the Digitally Integrated Geographic Information Technologies Laboratory, or DIGIT Lab (http://www.digit.utah.edu/), is an auxiliary facility of the Department of Geography. The DIGIT Lab operates within the University of Utah’s research infrastructure and provides support for both theoretical and applied Geographic information analysis and application development. The goal of the DIGIT Lab is to offer students real world experience, and at the same time, deliver the highest quality of geographic information services. The DIGIT Lab provides state-of-the-art instructional support for courses in the science and application of GIS, remote sensing, and spatial analysis. The DIGIT Lab also supports faculty research in the Department of Geography as well as other departments at the University of Utah. A somewhat unique aspect of the DIGIT Lab is that it is largely a self-funded facility that provides public services on a contract basis to local, state, and federal government agencies, as well as some private sector entities. Some areas of specialization include: spatial database design and development, custom GIS applications, enterprise database computing, spatial statistics and analysis, remote sensing and image processing, spatio-temporal process modeling, GPS data collection, cartography, and spatial data visualization. Contract services provide opportunities for undergraduate (hourly employment) and graduate students (graduate assistantships and hourly employment) to work in a professional environment, apply their knowledge and skills to real problems, as well as gain valuable work-related experience.

The DIGIT Lab operates a production lab dedicated to supporting contracted projects and faculty research. The lab operates current versions of ESRI® ArcGIS, ArcSDE, ArcGIS Server, ArcPad, ENVI®, SQLSever®, Trimble Pathfinder Office and TerraSync. In addition, the lab has 5 high-grade mapping Trimble GeoXT GPS units. Large-format HP color plotting and HP color laser printing is also available to graduate students for a fee. Contact Dr. Phoebe McNeally for more information.

Center for Natural and Technological Hazards: The Department of Geography oversees the Center for Natural and Technological Hazards (CNTH) on campus (http://hazards.utah.edu/). The function of the Center is to promote and support research and teaching in prominent hazards along the Wasatch Front and in the Intermountain Region. Avalanches, earthquakes, floods, landslides, and wildfire, along with technological and terrorist threats represent a significant risk to the population and property of this rapidly urbanizing region. The Department offers several courses on hazard analysis and emergency management, with a strong field investigation component. Numerous allied courses are available in urban planning, geology and geophysics, meteorology, and civil and environmental engineering. CNTH works closely with the Utah Division of Homeland Security (UDHS), and many students have found part-time and full-time employment through the program. Contact Dr. Tom Cova for more information.

Grace Lab: Dr. Grace researches population changes and how the environment relates to these populations. Projects include examining the impact of climate change on health outcomes of subsistence farmers in rural West Africa, evaluating the impact of immigration on family size goals and marriage patterns, and exploring the changing roles of men and women in peri-urban communities. Contact Dr. Kathryn Grace for more information.

Urban and Sustainability Research Lab: Contact Dr. Yehua Dennis Wei for more information.

Utah Geo-Health (UGH) Lab: Research in the Utah Geo-Health Lab focuses on using GIS and spatial methods to explore how the interactions among individual, society, and the environment influence population health. Current projects of the lab include disparities in health and access to healthcare, exposure to environmental pollutants such as agricultural pesticides and PM 2.5 and its health consequences, and smartphone applications in physical activity monitoring and aging. Contact Dr. Neng Wan for more information.

Utah Remote Sensing Applications (URSA) Lab: URSA engages in cutting-edge, applied remote sensing research. The lab uses a variety of remote sensing tools, including multispectral, hyperspectral, and lidar data to develop applications addressing environmental problems. Recent USRA research has investigated remote measurement of
vegetation type, fuel and wildfire properties, beetle kill, invasive species, and wetlands. Contact Dr. Philip Dennison for more information.

**Snow and Ice Lab:** The department hosts a cryosphere lab that focuses on studying the climate change aspects of mountain glaciers, ice sheets, and seasonal snow. The lab currently conducts field work in Alaska, Greenland, and Antarctica and uses remote sensing data acquired from satellites, airborne and ground-based systems. Contact Dr. Richard Forster for more information.

The following labs are part of the Donald R. Currey Paleoenvironmental Research Group:

**Records of Environment and Disturbance (RED) Lab:** The RED Lab was established in 2003 to analyze sediments for evidence of the impacts of climate change over thousands of years. As climate regimes change, vegetation communities shift and reorganize to adjust to the new conditions. Disturbance regimes such as fire and insect infestation are also affected by climate change. Pollen, charcoal, and plant and insect macrofossils can be recovered from lake, and other sediment sources to reconstruct how vegetation has responded through time, which provides information on how it may change in the future. The RED Lab includes a fume hood for processing fossil pollen samples, a wet lab for processing charcoal and macrofossil samples, and facilities to measure magnetic susceptibility and the organic and carbonate percentages in sediments. The RED Lab has microscopes for the analysis of both charcoal and pollen and computer resources to analyze data. Contact Dr. Andrea Brunelle for more information.

**The Power Paleoecology Lab:** The Power lab conducts environmental change research using biological and geochemical proxies for exploring past global change. Students working in the lab also contribute to the growth and management of the global charcoal database (GCD), an archive of over 800 fire history records from around the world (http://gpwg.org/). The GCD provides a community of international scientists a new tool for exploring past changes in global biogeochemical cycling, climate forcing, and ecosystem responses to biomass burning. The Power lab is also engaged in collecting modern and fossil plant specimens from research sites across Utah and the Intermountain West. Graduate and undergraduate students have the opportunity to work in the Garrett Herbarium, a collection of over 130,000 dried plant specimens housed at the Natural History Museum of Utah. Research projects in the Power lab include global-to-regional scale analysis of fire, climate and vegetation linkages with students participating in field- and lab-based research at sites in the western U.S., the Caribbean and Amazonia. Contact Dr. Mitchell Power for more information.

**Paleo-Data Lab:** In addition to the charcoal database, the Paleo-Data Lab works with regional and continental scale databases of pollen and peatland sequences to reconstruct information about past climates and ecosystems over the Northern Hemisphere. This information is used to test how well models of climate, vegetation and the carbon cycle can simulate past environments, tests that allow us to judge how well these models will estimate future global change. Contact Dr. Simon Brewer for more information.

**Nicoll Lab for Quaternary Sedimentology and Geomorphology:** Nicoll Lab for Quaternary Sedimentology and Geomorphology is involved with various projects that integrate applied geological techniques, including field-intensive stratigraphic, archaeological and geophysical research. The lab currently is equipped to process sediments for a variety of classic sedimentological techniques, including texture and particle size using mechanical and settling methods, and acetolysis methods such as those involved in pretreating samples for radiocarbon analysis at other AMS facilities. One emphasis of current research includes processing of sediments from the modern Great Salt Lake and Pleistocene Lake Bonneville. Geophysical techniques in practice include ground penetrating radar and terrestrial LiDAR acquisition and interpretation. Contact Dr. Kathleen Nicoll for more information.

**General Program Information**

**Forms**

Links to graduate forms listed in this handbook are available on the Department of Geography website. http://www.geog.utah.edu/forms.html
Student Progress
- Students are required to demonstrate adequate progress toward a degree each semester to be approved for continued study by the department.
  - The student’s advisor and/or the Director of Graduate Studies will determine whether adequate progress is being met, in accordance with Department and Graduate School requirements.
- Students are required to complete an annual progress assessment.
  - The purpose of the assessment is to help students set goals for completing their degrees, and to help advisors evaluate student progress and impediments to progress.
  - This assessment is due by the end of the first week of Spring Semester, and should be submitted to the student’s advisor.
  - The department encourages students to consult with their advisors on filling out the assessment.

Electronic Graduate Record File
Students may view their Electronic Graduate Record File to make sure they are on track for graduation, verify the accuracy of the entered information, and track missing approvals. A tutorial for using the system is located at: http://gradschool.utah.edu/current-students/electronic-graduate-record-file-tutorial/

Required Proficiencies and Coursework
- Advisors may expect basic proficiencies in statistics, GIS, cartography, writing, and mathematics. Courses taken to gain these skills cannot be used to satisfy graduate degree requirements, and are not included in tuition benefit.
- Students should consult with their advisor to discuss specific proficiencies needed for their degree.
- Ph.D. students must have a prior course or proficiency equivalent to Writing for Publication (WRTG 6000) or Scientific Writing (WRTG 7060).
- If University of Utah courses are used to fulfill these requirements, they cannot count toward graduate credit.

Course Credit Hours per Semester
- Students must register for at least one course per semester to stay active in the program.
- Students registered for 5-8 credits per semester are considered part time.
- Graduate students are considered full time when:
  - they are registered for 9 or more graduate credit hours
  - they have been enrolled in the program for at least two consecutive semesters of 9 credit hours or more, are registered for 3 credits hours per semester, and are registered for at least one credit hour of Thesis Research (GEOG 6970), Dissertation Research (GEOG 7970) or Faculty Consultation (GEOG 6981 for Master’s or GEOG 7981 for Ph.D). Faculty Consultation (GEOG 6981 or 7981) does not count toward fulfillment of degree requirements.
- Teaching Assistants cannot exceed 12 credit hours per semester.
- Research Assistants cannot exceed 11 credit hours per semester.
- Funded students exceeding the maximum number of credit hours per semester will be responsible for payment for these additional credit hours, charged at the resident rate.
- Students cannot register for more than 16 credit hours in any semester.
- Ph.D. students who have passed their qualifying exam may register for up to 4 semesters of Continuing Registration (GEOG 7990) at a charge of $37.50 per semester (subject to change without notice). This registration does not defer student loans, but does provide library privileges.

Independent Study Courses
Students doing independent study courses (i.e. GEOG 6950, 7950, 6951, 7951, etc.) must complete a Request for Individual Projects form, have the form signed by the course instructor, and return the form to the office staff to get a registration number.

Transferring Credits
Up to 6 credit hours of graduate credit may be transferred from the University of Utah or other institutions and applied toward graduate degree requirements.
Courses can only count toward one degree. A course that counts toward earning a prior degree cannot count toward earning a graduate degree from the Department.

Transferred credits must have been taken within four years of a Master’s student’s first semester and within seven years of a Ph.D. student’s first semester. Students must have received an A or B grade in the course to transfer the credits.

Transferred credits must be approved by the student’s advisor and the Director of Graduate Studies.

Transferred credits cannot replace the research course requirement (GEOG 6960 or GEOG 6400-6599) or GEOG 6961.

**Non-Matriculated Credits**

Up to 9 credit hours of graduate credit earned by non-matriculated students may be applied to a graduate degree program.

- Credits must be taken no more than 3 years prior to approval.
- Non-matriculated credits must be approved by the student’s supervisory committee and the Director of Graduate Studies.
- Applying more than 9 hours of non-matriculated work to the degree requires approval by the dean of The Graduate School.

**Colloquium Attendance**

The Department sponsors a colloquium series in which presentations are made by faculty, graduate students, and guest speakers.

- Students are strongly encouraged to attend colloquium regularly.
- **Colloquium attendance is required for all funded students.**
  - Funded students should register for 1 hour of Research Practicum (GEOG 6900 for Master’s students and GEOG 7900 for Ph.D. students), unless they are already enrolled for the maximum number of credits indicated above.
  - Funded students are required to sign an attendance sheet available at each colloquium as evidence of their participation in colloquium. Colloquium participation will be the basis for students’ grades in Research Practicum.

**Leave of Absence**

A student who is not able to register for classes due to justifiable, extenuating circumstances can request a leave of absence.

- The leave of absence must be approved by the student’s advisor and the Department Chair, who will recommend that the Graduate School grant a leave.
- **A leave of absence can be taken for a maximum of one year.**
- Time on leave does not count toward the 4 years allowed to complete the Master’s program or the 6 years allowed to complete the Ph.D. program.
- Retroactive leaves of absence are not granted.
- Students can download the *Graduate Student Request for Leave of Absence* form from the University of Utah Registrar’s Office website.

**Lapse of Registration**

A graduate student who fails to register for a term (excluding summer terms) is immediately made ineligible to register for future terms.

- A student who is unable or not permitted to register for a term must reapply for admission to graduate studies at the University.
  - A completed graduate admissions application with fee must made through the online application ApplyYourself system by the appropriate term deadline.
  - The student should also contact the department regarding their readmission to the program.

**Grade Policies**

- **Students must maintain a minimum grade point average of 3.0 with no grade lower than a “B-” in courses taken for graduate credit.**
- In general, graduate students are not permitted to take courses on a “Credit/No Credit” (CR/NC) basis.
• Certain exemptions exist for this rule; see the Graduate School website for details (http://gradschool.utah.edu/graduate-catalog/grading-and-credit-policies/).
• The Director of Graduate Studies must approve any courses taken on a CR/NC basis.

**Ethics**

Students are expected to adhere to a high standard of ethics in their research, course work, and examinations, as outlined in the [University Code of Student Rights and Responsibilities](http://gradschool.utah.edu/graduate-catalog/grading-and-credit-policies/). Violation of ethical standards can result in disciplinary action by the Graduate Studies Committee.

**The Master’s Program**

The Department of Geography offers both a Master’s of Science and a Master’s of Arts. All work for the degree must be completed within 4 consecutive calendar years. The program is outlined on the [Master’s Record of Progress](http://gradschool.utah.edu/graduate-catalog/grading-and-credit-policies/) form. Students can record and track their progress on this form.

**Course Requirements**

- A minimum of 30 credit hours are required for the Master’s degree.
  - **A minimum of 6 credit hours must be in GEOG 6970 (Thesis Research) or GEOG 6974 (Technical Report Research)**
- Graduate students must register for courses listed as 6000 level or above to obtain graduate credit.
  - An exception is available for courses listed at the 5000 level if that course does not have a listing at the 6000 level or above.
- **Master’s students are required to complete the following courses:**
  - GEOG 6961 (Seminar in Geographic Thought and Inquiry), which must be taken during fall semester of the student’s first year of graduate study.
  - WRTG 6000 (Writing for Publication) or WRTG 7060 (Scientific Writing), which must also be taken during the student’s first year of graduate study.
  - GEOG 6000 (Spatial Statistics)
  - Two research courses totaling 6 credits. These courses can be GEOG 6960 or from the range of courses offered as GEOG 6400-6599. Students cannot take both research courses from the same faculty member.
  - A minimum of 10 credit hours of elective courses taken at the 6000 level or above, or at the 5000 level if a suitable course is not available at the 6000 level.
  - A minimum of 6 credit hours of GEOG 6970 (Thesis Research) or GEOG 6974 (Technical Report Research). Up to 10 credit hours of GEOG 6970 or GEOG 6974 may be counted towards the Master’s Degree. Students choosing the manuscript option should take GEOG 6970.

**Supervisory Committee**

Master’s students should ideally identify an advisor during their first semester in the Department, and nominate a Supervisory Committee during their second semester. The Supervisory Committee advises the student in planning a program of study and planning thesis research or technical report preparation.

- **The committee chair must be a regular faculty member in the department.**
- Students should work with their advisor to determine appropriate committee members.
- A Master’s supervisory committee consists of three faculty members, the majority of whom must be regular faculty from the department.
- Students must provide the Department and the Graduate School with a vita for any committee members not from the University of Utah.
- Students need to submit the [Request for Supervisory Committee](http://gradschool.utah.edu/graduate-catalog/grading-and-credit-policies/) form to nominate their committee. This form is available on the Geography Department website.
- A student’s Advisor and Supervisory Committee must approve the student’s program of study.

**Language Requirement**

Candidates for the Master’s of Arts degree must be certified by the Department of Languages and Literature as having demonstrated “standard proficiency” in at least one foreign language.

- The Department must approve the choice of language.
There is no language requirement for the Master’s of Science degree.

**Thesis, Manuscript and Technical Report Options**

Master’s students must choose between the thesis option, manuscript option, and the technical report option.

- The thesis and manuscript options are appropriate for most Master’s students, and offer the freedom to enter a Ph.D. program at some point in the future.
- **A Master’s earned by the technical report option will prohibit the student from entering the Department’s Ph.D. program and Geography Ph.D. programs at other academic institutions.**
- The technical report option is appropriate for graduate student programs that emphasize:
  - applied, rather than basic research
  - professional training and certification
  - documentation of technical innovations and creations
  - preparation of instructional and educational materials
  - preparation of site, urban, regional, land-use, resource, and environmental planning documents
  - preparation and review of environmental impact statements and assessments
  - documentation pertaining to natural and technological hazards assessment, preparedness, response, and recovery.

- **The manuscript option is a modified thesis option with the following guidelines:**
  - **This option is only available at the discretion of the student’s Advisor and Supervisory Committee**
  - The manuscript document should be written in the form of a publishable manuscript targeted to a specific journal, together with introduction and conclusion chapters.
  - Publishable quality consists of two components: a) the content of the manuscript, and b) the style and presentation of the manuscript.
  - The targeted journal must be identified as a high quality outlet for the type of research conducted and must be approved by the student’s Advisor and Supervisory Committee.
  - Publication of the document does not fulfill graduation requirements. The document must still be approved by the student’s advisor and committee.
  - Publication is not required for completion of degree requirements.
  - Contact the Thesis Editor for guidelines on formatting the manuscript to meet the University’s thesis formatting requirements.

- Students should work with their Supervisory Committee to select the thesis, manuscript, or technical report option.
- **The Supervisory Committee is required to approve the selected option by signing the Thesis/Technical Report/Dissertation Proposal Approval form.**
- Any change in option must be approved by the committee and documented on the Request to Change Thesis/Technical Report/Dissertation Option form.

**Master’s Proposal**

Students must submit a thesis, manuscript/thesis, or technical report proposal to their Supervisory Committee.

- The proposal should contain the following elements:
  - An introductory statement
  - A statement describing the goals of the research and the potential contributions of the research
  - An explicit statement of the hypothesis to be tested or problem to be solved
  - A description of the methodology, including the steps in the research procedure, techniques that will be used, a timeline that includes deadlines for each step, and an assessment of data availability
  - A bibliography of sufficient length to demonstrate that the student has acceptable background in his or her area of research
- Upon supervisory committee approval of the student’s proposal, a digital copy of the proposal must be submitted along with the Thesis/Technical Report/Dissertation Proposal Approval form to the Department Graduate Secretary.

**Colloquium Presentation**

Master’s students are required to present their proposal in a colloquium presentation.

- **To schedule a colloquium presentation, students are required to have the following:**
• A completed **Supervisory Committee** form
• Permission from their advisor to schedule their colloquium.

**Presentations are scheduled at the beginning of Fall and Spring semesters and the end of Spring semester.**

• Once you have fulfilled the requirements listed above, contact the Colloquium Committee Chair to determine the next presentation date, and notify the Colloquium Committee Chair of your intention to present.

• The completed colloquium presentation is documented on the student’s **Thesis/Technical Report/Dissertation Proposal Approval** form and must be completed before the student is allowed to register for Thesis Research (GEOG 6970) or Technical Report Research (GEOG 6974).

**Program of Study**

• The following items must be completed to apply for candidacy (using the **Application for Admission to Candidacy** form):
  - Completed and signed **Supervisory Committee** form
  - Thesis/technical report proposal approved by entire supervisory committee
  - Completion of colloquium presentation
  - Department faculty approval of the student’s thesis/technical report proposal
  - Approval of the student’s program of study by the Supervisory Committee, Graduate Director, and Department Chair.

• The program of study needs to be entered by the last drop dates of classes for the semester.

**Master’s Thesis and Technical Report Guidelines**

• The Master’s thesis (including the manuscript option) should demonstrate a student’s ability to identify a research problem, develop or apply appropriate methodology, research defensible conclusions, and communicate results to a general scientific audience.

• The Master’s technical report should demonstrate a student’s ability to identify an application problem, develop or apply appropriate methodology and either solve the problem or develop a product that can be used in the application context.

• The thesis or technical report must reflect original work by the student and meet the formatting guidelines of the University
  - Approved reference styles can be found at [http://gradschool.utah.edu/thesis/department-approved-style-guides-2/](http://gradschool.utah.edu/thesis/department-approved-style-guides-2/)

• The thesis or technical report must be submitted to the Supervisory Committee at least 14 days prior to establishing a date for the student’s Master’s defense.
  - After the 14 day period, if all members of the Supervisory Committee are in agreement, a defense can be scheduled.

**Applying for Graduation**

Students must complete an **Application for Graduate Degree** with the Registrar’s Office, Graduation Division (window 15 Student Services Building) several months before their planned semester of graduation. Deadlines for submission are:

• Fall semester (December)—June 1st
• Spring semester (May)—November 1st
• Summer semester (August)—February 1st

Applications will not be accepted more than one year in advance.

**Master’s Defense**

The Master’s defense consists of a public presentation of the student’s thesis, manuscript, or technical report, followed by a period for audience questions and a closed session for questions from the student’s Supervisory Committee.

• By majority vote, the members of the Supervisory Committee must certify on the **Report of the Final Examination for the Master’s Degree** form that the thesis or technical report has been found satisfactory for the degree.
The candidate must be enrolled in one course at the University of Utah during the semester of the Master’s defense.

- Most students register for GEOG 6970 (Thesis Research), GEOG 6974 (Technical Report Research), or GEOG 6981 (Faculty Consultation) during the semester of their defense. GEOG 6981 does not count toward fulfillment of degree requirements.

**Filing Your Thesis**

After making any changes to the thesis (including the manuscript option) that the student’s Supervisory Committee may require after the Master’s defense, the student will then submit the thesis with the signed *Supervisory Committee Approval* form to the Department Chair for approval on the *Final Reading Approval* form.

- Chair’s approval can take up to 5 business days.
- Following Chair’s approval, students must submit one complete copy of the thesis and the *Committee and Final Reading Approval forms* to the Thesis Office (302 Park Building) for format approval.
- **Students must submit their final thesis to the Thesis Office within 4 months of their defense date.**
- Once formatting and all other requirements for graduation have been met, a Thesis Release is issued.
- All processing and uploading of the thesis must be completed by the Thesis Editor’s published deadline for graduation in that semester.

**Submitting Your Technical Report**

- By majority vote, have Supervisory Committee sign the *Technical Report Approval form*.
- Two copies of the complete technical report (including all datasets, graphics, and other attachment(s) are to be provided to the Department in a final form that is suitable for permanent archiving (and controlled circulation among students and other borrowers), plus a digital copy on a CD.
- All processing of the technical report must be completed by the last day of finals for graduation in that semester.

**The Ph.D. Program**

Ph.D. students are required to spend at least one year (2 consecutive semesters of at least 9 credit hours each) in continuous residence at the University of Utah. The Department allows 6 years for completion of the Ph.D. program. The program is outlined on the *Ph.D. Record of Progress* form. Students may track and record their progress on this form.

**Course Requirements**

- A minimum of 32 credit hours are required for the Ph.D.
  - **A minimum of 14 credit hours must be in GEOG 7970 (Dissertation Research)**
  - Graduate students must register for courses listed as 6000 or above to obtain graduate credit.
    - An exception is available for courses listed at the 5000 level if that course does not have a listing at the 6000 level or above.
  - **Ph.D. students are required to complete the following courses:**
    - GEOG 6961 (Seminar in Geographic Thought and Inquiry), which must be taken during fall semester of the student’s first year of graduate study.
    - GEOG 6000 (Spatial Statistics)
    - Two research courses totaling 6 credits. These courses can be GEOG 6960, or from the range of courses offered as GEOG 6400-6599. Students cannot take both research courses from the same faculty member.
    - One credit hour of GEOG 7930 (Teaching Practicum).
    - A minimum of 5 credit hours of elective courses taken at the 6000 level or above, or at the 5000 level if a suitable course is not available at the 6000 level.
    - GEOG 6000 and 6961 taken as a Master’s student in the Department of Geography at the University of Utah do not have to be retaken, but elective courses must be substituted to fulfill the 32 credit hour requirement. Elective coursework is selected with the approval of the student’s Supervisory Committee.
Supervisory Committee
Ph.D. students should ideally identify an advisor during their first semester in the Department, and nominate a Supervisory Committee during their second semester. The Supervisory Committee advises the student in planning a program of study and planning dissertation research.

- **The committee chair must be a regular faculty member in the department.**
- Students should work with their advisor to determine appropriate committee members.
- A Ph.D. Supervisory Committee consists of five faculty members.
  - The majority of the members must be regular faculty from the department.
  - At least one member of the Supervisory Committee must be from outside of the Geography Department.
- Students must provide the Department and the Graduate School with a vita for any committee members not from the University of Utah.
- Students need to submit the [Request for Supervisory Committee](#) form to nominate their committee. This form is available from the Geography Department website.
- **A student’s Advisor and Supervisory Committee must approve the student’s program of study.**

Teaching Requirement

- **Each Ph.D. student must participate in a practical teaching experience during his or her program.**
- The student should enroll in GEOG 7930 (Teaching Practicum) for a minimum of one credit hour during the semester of this practical teaching experience.
- The nature of the teaching experience will be determined by the student’s Advisor and Supervisory Committee.
- Students and advisors must complete and sign an [Independent Study Form](#) and return it to the staff to get the registration information.

Research Skills Requirement

- All Ph.D. students in the Department of Geography must demonstrate proficiency in at least two geographic skills.
  - These skills may include competence in a foreign language at the Standard or Advanced Proficiency level, cartography and geo-visualization, field methods, geo-computational methods, graphic information science (GIS), macrofossil analysis, palynology, plant taxonomy, remote sensing and image analysis, and spatial statistics.
- The specific skills required of a student and the acceptable level (in-depth advanced proficiency) of proficiency in each skill will be determined by the student’s Supervisory Committee and documented on the [Skills Proficiency](#) form.
- Proficiency in more than two research skills may be required at the option of the student’s Supervisory Committee.
- The research skills requirement must be completed before a student may take his or her qualifying examinations.

Dissertation and Manuscript Options

A manuscript option is available for Ph.D. students intending to publish their dissertation research in one or more peer reviewed journals.

- The manuscript option has all the same requirements as a dissertation, with the following additional guidelines:
  - **This option is only available at the discretion of the student’s Advisor and Supervisory Committee**
  - The dissertation document should be written in the form of three publishable manuscripts targeted to specific journals, together with introduction and conclusion chapters.
  - Individual manuscripts must be closely related, and the introduction and conclusion chapters must explicitly identify the interrelated themes of the manuscripts and a future research agenda.
  - Publishable quality consists of two components: a) the content of the manuscript, and b) the style and presentation of the manuscript.
The targeted journal must be identified as a high quality outlet for the type of research conducted and must be approved by the student’s Advisor and Supervisory Committee.

- Publication of the document does not fulfill graduation requirements. The document must still be approved by the student’s advisor and committee.
- Publication is not required for completion of the degree requirements.

- **The Supervisory Committee is required to approve the selected option by signing the Thesis/Technical Report/Dissertation Proposal Approval form.**
- Any change in option must be approved by the committee and documented on the Request to Change Thesis/Technical Report/Dissertation Option form.

**Dissertation Proposal**

Ph.D. students must submit a dissertation or manuscript/dissertation proposal to their Supervisory Committee.

- The proposal should contain the following elements:
  - An introductory statement
  - A statement describing the goals of the research and the potential contributions of the research
  - An explicit statement of the hypothesis to be tested or problem to be solved
  - A description of the methodology, including the steps in the research procedure, techniques that will be used, a timeline that includes deadlines for each step, and an assessment of data availability
  - A bibliography of sufficient length to demonstrate that the student has acceptable background in his or her area of research

- Upon supervisory committee approval of the student’s proposal, a digital copy of the proposal must be submitted along with the Thesis/Technical Report/Dissertation Proposal Approval form to the Department Graduate Secretary.

**Colloquium Presentation**

Ph.D. students are required to present their proposal in a colloquium presentation.

- **To schedule a colloquium presentation, students are required to have the following:**
  - A completed Supervisory Committee form
  - Permission from their advisor to schedule their colloquium.

- **Presentations are scheduled at the beginning of Fall and Spring semesters and the end of Spring semester.**
  - Once you have fulfilled the requirements listed above, contact the Colloquium Committee Chair to determine the next presentation date, and notify the Colloquium Committee Chair of your intention to present.

- The completed colloquium presentation is documented on the student’s Thesis/Technical Report/Dissertation Proposal Approval form and must be completed before the student is allowed to register for Dissertation Research (GEOG 7970).

**Qualifying Exams**

- Written and oral examinations are required for each Ph.D. student.
- Written exam length is not recommended to exceed 20 hours in length.
- The written exam can be taken over a period of up to two weeks.
- Subject matter and format of the exams are selected in consultation with the student’s Advisor and Supervisory Committee.
- Qualifying exams must be passed at least one semester before graduation.
- Qualifying exams may be repeated only once, and only at the discretion of the student’s Supervisory Committee.

**Application for Candidacy**

- The following items must be completed to apply for candidacy (using the Application for Admission to Candidacy form):
  - Completed and signed Supervisory Committee form
  - Dissertation proposal approved by entire supervisory committee
  - Completion of colloquium presentation
  - Department faculty approval of the student’s dissertation proposal
  - Completed and signed Skills Proficiency form
• Approval of the student’s program of study by the Supervisory Committee, Graduate Director, and Department Chair.
• Passed qualifying examinations
• After completing these requirements, students should file a Report of the Qualifying Examination and Recommendation for Admission to Candidacy form.
• Students should apply for candidacy at least one semester before graduation and no earlier than two semesters before graduation.

Dissertation Guidelines
• A dissertation should contain the results of independent research and constitute a contribution to the knowledge and/or methodology within a student’s field.
• A dissertation must reflect original work by the student and meet the formatting guidelines of the University
  ▪ Approved reference styles can be found at http://gradschool.utah.edu/thesis/department-approved-style-guides-2/
• A student’s dissertation must be submitted to their Supervisory Committee at least 14 days prior to establishing a date for the student’s dissertation defense.
  ▪ After the 14 day period, if all members of the Supervisory Committee are in agreement, a defense can be scheduled.
• Students are strongly encouraged to submit a dissertation draft to the Thesis Office for “preliminary review” before their defense.
  ▪ The manuscript will not be read at this time, but it will be examined for obvious formatting errors.
  ▪ Manuscripts are not given preliminary reviews by the Thesis Office after the student’s defense.

Applying for Graduation
Students must complete an Application for Graduate Degree with the Registrar’s Office, Graduation Division (window 15 Student Services Building) several months before their planned semester of graduation. Deadlines for submission are:
• Fall semester (December)—June 1st
• Spring semester (May)—November 1st
• Summer semester (August)—February 1st
• Applications will not be accepted more than one year in advance.

Dissertation Defense
The dissertation defense consists of a public presentation of the student’s dissertation research, followed by a period for audience questions and a closed session for questions from the student’s Supervisory Committee.
• By majority vote, the members of the Supervisory Committee must certify on the Report of the Final Oral Examination for the Ph.D. form that the student passed the examination and that the dissertation has been found satisfactory for the degree.
• The candidate must be enrolled in one course at the University of Utah during the semester of the dissertation defense.
  ▪ Most students register for GEOG 7970 (Dissertation Research), or GEOG 7981 (Faculty Consultation) during the semester of their defense. GEOG 7981 does not count toward fulfillment of degree requirements.

Filing Your Dissertation
After making any changes to the dissertation that the student’s Supervisory Committee may require after the dissertation defense, the student will then submit the dissertation with the signed Supervisory Committee Approval form to the Department Chair for approval on the Final Reading Approval form.
• Chair’s approval can take up to 5 business days.
• Following Chair’s approval, students must submit one complete hard copy of the dissertation and the Committee and Final Reading Approval forms to the Thesis Office (302 Park Building) for format approval.
• Students must submit their final dissertation to the Thesis Office within 4 months of their defense date.
Once formatting and all other requirements for graduation have been met, a Thesis Release is issued. All processing of the manuscript must be completed by the Thesis Editor’s published deadline for graduation in that semester.

Financial Assistance

Departmental Financial Aid
Departmental awards are not automatically renewed and ALL eligible students must apply by January 20th of each year to be considered for funding for the following academic year.

- Teaching Assistantships are awarded on a competitive basis according to Department needs and budget.
- Faculty with funded research projects have responsibility for selecting students for Research Assistant positions.
- Eligible teaching and research assistants qualify for tuition waivers and subsidized health insurance.
- Graduate Assistants are eligible for tuition waivers only.
- Tuition waivers do not cover credits beyond 12 (11 for RAs) hours; lower division courses; recreation & leisure courses; health insurance premiums; international student surcharge; any special class fees; or differential tuition charged for courses offered by City and Metropolitan Planning, Business School, College of Engineering, or other programs.

**Funded students are required to work 20 hours per week on departmental assignments.**

- By accepting aid, students agree not to work more than 10 hours per week outside of the Department.
- If you accept other work on campus, see the Department Administrative Assistant to avoid potential problems with tuition benefits.
- Master’s students can receive departmental assistance through teaching assistantships for up to 4 semesters.
- Ph.D. students can receive departmental assistance through teaching assistantships for up to 6 semesters.

Financial aid may be withdrawn for:

- Failing to maintain a 3.0 GPA
- Not fulfilling work obligations to Department or University standards
- Not making adequate progress toward a degree, as assessed by the student’s Advisor, Supervisory Committee, and/or the Director of Graduate Studies
- Violations of University Code of Student Rights and Responsibilities.

Other Financial Aid
Graduate students are encouraged to seek out financial support from fellowships and grants. A partial list of programs available to students follows.

- Federal Work Study Grants
- University Graduate Research Fellowship
- National Science Foundation Graduate Research Fellowship and Dissertation Improvement Grant
- NASA Earth System Science Fellowship
- Fulbright Grant
- Marriner S. Eccles Fellowship
- Garr Cutler Energy Award
- Williams Memorial Graduate Fellowship
- Research Travel Assistance award from Graduate School
- ASU Travel awards
- GTU Scholarships
- USGIF Scholarships
- ASPRS Scholarships

Residency and Tuition
Current tuition for non-resident students is more than triple the charge to resident students. Domestic students are encouraged to become residents as soon as possible to reduce their tuition liability.

- U.S. citizens are eligible to apply for Utah residency once 40 graduate credit hours are reached.
- Funded domestic students MUST apply for Utah residency at 60 credit hours.
Residency may be established if the student is a U.S. citizen with 40 credit hours taken as a graduate student, and does not maintain a residence elsewhere as demonstrated by the following evidence:

- Utah voter registration
- Utah driver’s license
- Employment in Utah
- Payment of Utah income taxes
- Utah bank account

Resident tuition applies to all students under the following circumstances:

- When the ONLY credit hours registered for are GEOG 6970, 6981, 7970, or 7981.
- For funded students, hours taken above the maximum credit hours covered by tuition benefit (11 credit hours for Research Assistants, 12 credit hours for Teaching Assistants and Graduate Assistants).
- Summer semester registration

International Research Assistants with more than 84 credit hours are responsible for the difference between the non-resident and resident tuition amount.

Further information on residency and application forms see [http://admissions.utah.edu/apply/residency/](http://admissions.utah.edu/apply/residency/)

### Student Participation and Professional Organizations

Graduate students are encouraged to constructively participate in departmental affairs through a number of avenues.

- SAC (Student Advisory Committee)
- Geography Week
- Faculty meeting representative
- Colloquium committee member
- RPT/TFR committee member
- Newsletter editors
- Fund raising
- Social, sports and recreational activities
- Geography Club
- GTU (Gamma Theta Upsilon)

The department encourages all graduate students to participate in at least one professional organization. Some possibilities are:

#### Association of American Geographers (AAG) Great Plains-Rocky Mountain Division
- Full-time students charged substantially reduced membership fees for AAG
- Membership includes subscriptions to the *Annals of the Association of American Geographers*, *The Professional Geographer*, *AAG Newsletter*, and access to *Jobs in Geography* job listings.
- Students are encouraged to enter papers into student paper competitions and attend the regional and national conferences.

#### American Geophysical Union (AGU)
- Includes weekly journal *EOS* and monthly journal *Physics Today*.
- Membership is very affordable for students (currently $7 per year).

#### National Council for Geographic Education (NCGE)
- NCGE is dedicated to the improvement of Geographic education at all levels.
- Student membership includes a subscription to the *Journal of Geography* and other benefits.
- This organization is especially useful to pre-college schoolteachers.

#### American Society of Photogrammetry and Remote Sensing
- Student memberships are available to those interested in remote sensing, photo interpretation, and mapping.

#### Gamma Theta Upsilon (GTU)
- GTU is a national honorary fraternity for Geographers
- Members are eligible for scholarships ([http://www.gammathetaupsilon.org/scholarships.html](http://www.gammathetaupsilon.org/scholarships.html))

#### Western Regional Science Association
- Affiliated with the Regional Science Association International
• Seeks the advancement of regional analysis and related spatial and aerial studies through multidisciplinary analysis.

**Departmental Infrastructure**

While the department staff is happy to assist you with your needs, please do not ask staff members to make exceptions to the following policies. Questions regarding individual programs should be directed to faculty advisors or the Director of Graduate Studies.

**Department Space**

- Graduate students may be provided with desk space within the Department.
- Desk space is assigned in the following priority, as space is available:
  - Students funded by the department
  - Students on fellowships
  - SAC leaders
  - Ph.D. students without funding
  - Master’s students without funding
- Marriott Library has areas reserved for use by graduate students, if space is not available within the Department
- **Students are required to maintain their assigned space in a clean and sanitary manner.**
- If department staff or faculty find unsanitary or unsightly conditions within an assigned space, the student(s) assigned to that space will be responsible for correcting the problem.
- Issues related to safety or proper functioning of department infrastructure should be immediately reported to department staff.

**Contact Information**

- Provide the office with your local address, phone, and email.
- Advise the staff with your new contact information whenever it changes.
- Keep your information current in the Campus Information System
- Name change forms are available at: [http://registrar.utah.edu/_pdf/name-change.pdf](http://registrar.utah.edu/_pdf/name-change.pdf)

**Keys**

- Students must pay a $5 refundable deposit per key.
- Graduate students may request a key to the department office, an assigned office and/or lab, and OSH 117
- If keys are lost, there will be an additional $10 charge and the initial $5 fee will not be refunded.
- Students are responsible to maintain security by locking doors, reporting lost keys, not loaning keys

**Office Equipment and Supplies**

- Student computers and printers are located in OSH 109, 117, 273 and 277.
- Computers and printers in the department office (270 OSH) are not for student use.
- Personal photocopies can be made on the departmental copier for 5¢ per copy charge (billed monthly). See staff for a copier code.
- Office supplies are available for instructional use only.
- Reserve laptops, cables, laser pointers, data projectors and sign them out. Return them immediately after use so that others may use this equipment.

**Mail, Telephones, and Communication**

- Telephones for graduate student use are located in OSH 109 and 117. These phones can make campus and local calls.
- Long distance calls can be made from the pay phone in the north wing on the second floor of OSH.
- Please ask staff if you need to use the fax machine. You may be charged.
- Graduate students are assigned a mailbox in 270 OSH. Please check it often.
- University guidelines do not allow students to use this address for personal mail.
- Be sure to notify others when you leave the University so your mail doesn’t continue to come to the Department office.
Reserving Space

- Contact the office staff to reserve OSH 215, Bowman Hawkes Conference Room, or another space.
- Use the Testing Center (http://www.sa.utah.edu/testing/faculty/proctoring.html) for administering make-up tests.

CSBS Computer Labs

- Labs are located at 273 and 277 OSH, 101 BEH S, and 330 AEB.
- The college also has a “Virtual Lab” that can be logged into remotely.
- Printing costs are deducted from your UCard account.
- If classes are in session, you must leave the lab.
- Request extended hours access from a staff member.