Geography

Degrees Offered

- Master of Arts
- Doctor of Philosophy

Nature of the Program

Geography is a diverse and innovative field of study that bridges humanities, social sciences and natural sciences. Geographers engage with the most pressing issues of our time, including global environmental change, social inequality and transformations of our economy, politics, ecology and culture in the shifting terrain of the 21st century. Our geographers are trained in cutting-edge approaches to understand and make a difference in our rapidly changing world.

West Virginia University offers master’s and doctoral degrees in geography. Our graduate program has a large faculty with expertise in the subdisciplines of human geography, environmental geography and geographic information science. Using qualitative and quantitative research methods, our faculty research in south Asia, Latin America, sub-Saharan Africa, the Middle East, east Asia and the U.S., including Appalachia.

Our interdisciplinary learning environment featuring state-of-the-art computing and spatial analysis facilities offers students the chance to develop innovative research projects and learn valuable skills to help solve some of the major challenges facing our world today.

The Graduate Program in Geography was designated a program of excellence by the West Virginia University Board of Governors in 1998, 2003, and 2008. This award is given to superlative degree programs in recognition of their contribution to higher education in West Virginia and national recognition.

Research

Students who are interested in pursuing research in an area other than these may do so provided the research area matches the interest of a faculty member in the department who agrees to supervise the student’s program. Students who wish to focus their research on a particular region are encouraged to do so. The Graduate Program in Geography at WVU has strong links with the University’s Regional Research Institute, the State GIS Technical Center, the Geology Program, the Water Research Institute, the International Studies Program, the West Virginia Geological and Economic Survey, the Center for Women’s Studies, and the Center for Black Culture and Research.

Computing Facilities

The Geography program has extensive computing facilities housed in a new 98,000 square foot building dedicated exclusively to geography and geology. The new building has five computer laboratories dedicated to teaching and research. The department has ESRI ArcGIS, ERDAS Imagine, and ENVI site licenses. In addition, the department supports SAS, SAS-Graph, JMP, Surface III, Oracle, and extensive database and statistical packages. The department’s geovisualization research group operates an immersive four-wall 3-D display environment or CAVE. The remote sensing program operates an ASD full-range portable spectroradiometer.

FACULTY

CHAIR

- Tim Carr - Ph.D. (University of Wisconsin-Madison)

ASSOCIATE CHAIR FOR GEOGRAPHY

- Karen Culcasi - Ph.D. (Syracuse University)

PROFESSORS

- Trevor Harris - Ph.D. (University of Hull) Geographic Information Science
- Amy Hessl - Ph.D. (University of Arizona) Biogeography, Forest Ecosystems
- Randall Jackson - Ph.D. (University of Illinois) Director Regional Research Institute, Economic Geography
- Brent McCusker - Ph.D. (Michigan State University) Land Use Change, Africa
- Timothy Warner - Ph.D. (Purdue University) Remote Sensing
PROFESSOR EMERITUS
- Greg Elmes - Ph.D. (Penn State University)
  Geographic Information Science
- Ken Martis - Ph.D. (University of Michigan)
  Political, Electoral and Historical Geography

ASSOCIATE PROFESSIONALS
- Jamison Conley - Ph.D. (Penn State University)
  Spatial Analysis, Geocomputation
- Karen Culcasi - Ph.D. (Syracuse University)
  Political Cartography, Middle East
- Eungul Lee - Ph.D. (University of Colorado)
  Climatology, Land-Atmosphere Interactions
- Brenden McNeil - Ph.D. (Syracuse University)
  GIScience, Environmental Modeling
- Bradley Wilson - Ph.D. (Rutgers University)
  Food Justice, Solidarity Economies, Political Ecology

ASSOCIATE PROFESSOR EMERITUS
- Robert Hanham - Ph.D. (Ohio State University)
  Regional Development

ASSISTANT PROFESSIONALS
- Martina Caretta - Ph.D. (Stockholm University)
  Feminist Geography, Human Dimensions of Water
- Cynthia Gorman - Ph.D. (Rutgers)
  Gender, Migration, Human Rights, Refugee Communities
- Jonathan Hall - Ph.D. (Ohio State University)
  Desert Ecology, Biogeography
- Insu Hong - Ph.D. (Arizona State University)
  GIScience, Virtual Reality and Spatial Optimization
- Rick Landenberger - Ph.D. (West Virginia University)
  Remote Sensing, Geosciences Education
- Aaron Maxwell - Ph.D. (West Virginia University)
  Remote Sensing, GISc, Physical Geography
- Maria Alejandra Perez - Ph.D. (University of Michigan)
  Human Geography, Science & Society, Speleology, Latin America
- Jamie Shinn - Ph.D. (Penn State University)
  Environmental Governance, Political Ecology, Adaptation to Climate Change

Admissions
APPLICATION
M.A. applicants must submit GRE scores, a personal two-page statement defining the applicant’s interest in geography and career intentions, and two letters of recommendation from people who are familiar with the student’s undergraduate training.

Ph.D. applicants must send three letters of recommendation, GRE scores, and a two-page research statement. Applicants are strongly encouraged to contact potential doctoral advisors among the faculty prior to application.

To receive full consideration, including consideration for funding opportunities, all applications for Fall admission must be submitted by January 15. In exceptional circumstances, we will review applications received after the January 15 deadline.

Prospective M.A. students must have an overall cumulative undergraduate GPA of 3.0.

Prospective Ph.D. students must hold a M.A./M.S. degree and a cumulative GPA of at least 3.0 in their previous graduate work. Students with degrees in other non-geography disciplines are encouraged to apply although they may be asked to make up deficiencies in geography during the first year in the program.

International students are encouraged to submit their materials at least three months in advance of all deadlines.
TEACHING ASSISTANTSHIPS
A small number of graduate teaching assistantships are competitively awarded by the Geography program on an annual basis. Teaching assistants are employed to work in support of undergraduate courses. Applicants who wish to be considered for a teaching assistant position should make that request known in their application.

RESEARCH ASSISTANTSHIPS
Research assistantships must be applied for through the faculty member whose research is providing the funding. The geography faculty are engaged in numerous funded research projects, many of which provide graduate students with opportunities for obtaining research skills and experience as well as employment and tuition aid. Furthermore, the professional contacts made in the course of faculty research frequently provide graduate students with opportunities for career development.

Master of Arts
The Master’s Program in Geography at West Virginia University provides students with cutting edge training in the history and theory of geography, experience with advanced geographic research methodologies and specialized mentoring from faculty experts across three sub-disciplinary fields (Human Geography; Environmental Geography; Geographic Information Science). To earn a M.A. in Geography at WVU students must complete 30 credit hours of graduate courses (based upon the curriculum described below), form a committee of graduate faculty to supervise their study, write and defend a thesis or project proposal, and finally, write and defend a thesis or project.

Degree Requirements
The M.A. thesis option is designed to enable full-time students to satisfy all program requirements and complete an examinable thesis within two years. Students are required to be well grounded in one or more of the program’s three areas of specialization (Geographic Information Science; Human Geography; and Environmental Geography).

• Credit Hours: Students are required to complete a minimum of 30 graduate credit hours in Geography at the 400 level or above. WVU requires that no more than 40% of the graduate degree credits be at the 400-level.

• Grade Point Average: Students must earn a minimum GPA of 3.0 overall and in coursework applied to their graduate program.

• Graduation Requirement: Students have the option of pursuing a Professional Master’s Project or completing a Master’s Thesis. The M.A. thesis is an independent research project undertaken by the student. The thesis research should adhere to the following: 1) Demonstrate knowledge of the literature in the student’s chosen field, 2) Use data and methods appropriate to the research, 3) Draw conclusions from the research endeavor. The Professional Master’s Project is designed for students interested in a more focused project than the traditional research thesis option. It is not recommended for students considering entering a Ph.D. program. The project has strict deadlines and must be completed in one semester and after the completion of GEOG 601 and either GEOG 603 or GEOG 701.

• Additional Requirements: The academic progress of every master's student is reviewed each year. Students must submit a self-evaluation signed by their advisor by January 15. The Graduate Committee will conduct its annual review of students in February and communicate with students in March. Waivers to the M.A. deadlines, timing requirements, and other rules may be requested from the Graduate Coordinator. Waivers are only given under extraordinary circumstances.

• Thesis Defense: The thesis defense occurs when the advisor and the committee agree that a defendable copy of the thesis is complete. The defense date must be advertised to the department at least three weeks in advance. Thesis defenses are not normally scheduled between June 15 and August 15. In accordance with College requirements, original signatures are required on the shuttle sheet form specifying the outcome of the defense.

• Required Deadlines:
  • Thesis option
    • First year
      • Fall semester: File plan of study
      • Spring semester: Form committee
    • Second year
      • Fall semester: Written proposal by Oct. 1st and Oral proposal by Oct. 31st
      • Spring semester: Defend thesis by the end of semester
  • Professional option
    • First year
      • Fall semester: File plan of study
      • Spring semester: Form committee
    • Second year
• Fall semester: Choose professional option by Oct. 1st. Get approval of written plan from the thesis committee and request permission to graduate committee by the end of semester.
• Spring semester: Defend project by the end of semester

### Curriculum Requirements

#### CORE COURSES:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 600</td>
<td>Geography Research Colloquium (repeated every semester)</td>
</tr>
<tr>
<td>GEOG 601</td>
<td>Geographic Traditions</td>
</tr>
<tr>
<td>GEOG 603</td>
<td>Qualitative Research in Geography</td>
</tr>
<tr>
<td>or GEOG 701</td>
<td>Quantitative Spatial Analysis</td>
</tr>
</tbody>
</table>

#### GEOGRAPHY ELECTIVES:

- Geography Courses at the 400 level or above

#### GRADUATION TRACK:

1- Professional Track

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 780</td>
<td>Non-Thesis Project (Professional option)</td>
</tr>
<tr>
<td>Any GEOG course at the 400 level or above</td>
<td></td>
</tr>
</tbody>
</table>

2- Thesis Track

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 797</td>
<td>Research (Thesis option)</td>
</tr>
</tbody>
</table>

* Excluding GEOG 600, GEOG 601, GEOG 697, GEOG 698, GEOG 699, GEOG 780, GEOG 797, GEOG 930.

### Doctor of Philosophy

The Doctoral Program in Geography at West Virginia University provides students with cutting edge training in the history and theory of geography, experience with advanced geographic research methodologies and specialized mentoring from faculty experts across three sub-disciplinary fields (Human Geography; Environmental Geography; Geographic Information Science). To earn a Ph.D. in Geography at WVU students must complete 28 credit hours of graduate courses (based upon the curriculum described below), form a committee of graduate faculty to supervise their study, pass a comprehensive exam, write and defend a dissertation research proposal, and finally, write and defend a dissertation.

#### Degree Requirements

- **Credit Hours:** Students are required to complete a minimum of 28 graduate credit hours in Geography at the 400 level or above. No more than 6 credit hours of 400-level courses may be counted towards the degree. Students may petition their committee to transfer up to 9 credit hours from another program.

- **Grade Point Average:** Students must earn a minimum GPA of 3.0 overall, and 3.0 in coursework applied to their graduate program.

- **Comprehensive Examinations:** The student is required to pass an oral and three written comprehensive examinations no later than the fourth semester. The student will be examined in two specialty areas and a third area closely related to the proposed dissertation research topic.

- **Dissertation Proposal/Defense:** Upon successful completion of the comprehensive examination and no later than the end of the fifth semester, the student will be expected to defend a dissertation research proposal. The award of the Ph.D. is granted upon the successful defense of the dissertation itself.

- **Required Deadlines:**
  - First year
    - Course work
    - Fall semester: File plan of study
  - Second year
    - Course work
    - Fall semester: Form committee
    - Spring semester: Oral and Written comprehensive exams
  - Third year
    - Field work/Data collection
    - Fall semester: Defend dissertation proposal by the end of semester
  - Fourth year
• Dissertation writing
• Spring semester: Defend dissertation by the end of semester (suggested)

Curriculum Requirements

COURSES

CORE COURSES:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 600</td>
<td>Geography Research Colloquium (6 credits minimum)</td>
</tr>
<tr>
<td>GEOG 601</td>
<td>Geographic Traditions</td>
</tr>
<tr>
<td>GEOG 603</td>
<td>Qualitative Research in Geography</td>
</tr>
<tr>
<td>or GEOG 701</td>
<td>Quantitative Spatial Analysis</td>
</tr>
</tbody>
</table>

COURSEWORK REQUIREMENT:

Select two courses from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 525</td>
<td>Problems in Geomorphology</td>
</tr>
<tr>
<td>GEOG 550</td>
<td>Geographic Information Science</td>
</tr>
<tr>
<td>GEOG 553</td>
<td>Environmental Impact Assessment</td>
</tr>
<tr>
<td>GEOG 612</td>
<td>Gender, Society and Space</td>
</tr>
<tr>
<td>GEOG 640</td>
<td>Geopolitical Perspectives</td>
</tr>
<tr>
<td>GEOG 654</td>
<td>Environmental Geographic Information Systems Modeling</td>
</tr>
</tbody>
</table>

Select one course from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 412</td>
<td>Geography of Gender</td>
</tr>
<tr>
<td>GEOG 415</td>
<td>Global Environmental Change</td>
</tr>
<tr>
<td>GEOG 443</td>
<td>African Environment and Development</td>
</tr>
<tr>
<td>GEOG 454</td>
<td>Environmental Geographic Information Systems</td>
</tr>
<tr>
<td>GEOG 455</td>
<td>Introduction to Remote Sensing</td>
</tr>
<tr>
<td>GEOG 462</td>
<td>Digital Cartography</td>
</tr>
</tbody>
</table>

Select one course from the following list:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 407</td>
<td>Environmental Field Geography</td>
</tr>
<tr>
<td>GEOG 452</td>
<td>Geographic Information Science: Applications</td>
</tr>
<tr>
<td>GEOG 453</td>
<td>Geographic Information Science: Design and Implementation</td>
</tr>
<tr>
<td>GEOG 456</td>
<td>Remote Sensing Applications</td>
</tr>
<tr>
<td>GEOG 517</td>
<td>Climatological Analysis</td>
</tr>
<tr>
<td>GEOG 651</td>
<td>Geographic Information Science: Technical Issues</td>
</tr>
<tr>
<td>GEOG 655</td>
<td>Remote Sensing Principles</td>
</tr>
</tbody>
</table>

GEOGRAPHY ELECTIVES: *

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOG 500</td>
<td>Any Geography course at the 500 level or above</td>
</tr>
</tbody>
</table>

Total Hours 28

* Excluding GEOG 600, GEOG 601, GEOG 697, GEOG 698, GEOG 699, GEOG 780, GEOG 797, GEOG 930.

Degree Progress

MASTERS DEGREE:

• Thesis/Project Defense: The thesis/project defense occurs when the advisor and the committee agree that a defendable copy of the thesis/project is completed. The defense date must be advertised to the department at least two weeks in advance. Thesis/Project defenses are not normally scheduled between June 15 and August 15. In accordance with College requirements, original signatures are required on the shuttle sheet form specifying the outcome of the defense. Students should work with closely with their advisors to establish expectations for length and structure of the thesis/project.

• Annual Evaluation: The academic progress of every master's student is reviewed each year. Students must submit a self-evaluation signed by their advisor by January 15. The Graduate Committee will conduct its annual review of students in February and communicate with students in March. Waivers to the M.A. deadlines, timing requirements, and other rules may be requested from the Graduate Coordinator. Waivers are only given under extraordinary circumstances.

• Required Deadlines:

  Thesis option
First year
  • Fall semester: File plan of study
  • Spring semester: Form committee

Second year
  • Fall semester: Written proposal given to committee by Oct. 1st and complete oral proposal by Oct. 31st
  • Spring semester: Defend thesis by the end of semester

Professional option
First year
  • Fall semester: File plan of study
  • Spring semester: Form committee

Second year
  • Fall semester: Professional option must be chosen by Oct. 1st. Get approval of written plan from the thesis committee and request permission from the graduate committee by the end of semester.
  • Spring semester: Defend project by the end of semester

DOCTORAL DEGREE:
  • Comprehensive Examinations: The student is required to pass an oral and three written comprehensive examinations no later than the fourth semester. The student will be examined in two specialty areas and a third area closely related to the proposed dissertation research topic.
  • Dissertation Proposal/Defense: Upon successful completion of the comprehensive examination and no later than the end of the fifth semester, the student will be expected to defend a dissertation research proposal. Dissertation Proposal defenses are not normally scheduled between June 15 and August 15. The award of the Ph.D. is granted upon the successful defense of the dissertation itself.
  • Annual Evaluation: The academic progress of every doctoral student is reviewed each year. Students must submit a self-evaluation signed by their advisor by January 15. The Graduate Committee will conduct its annual review of students in February and communicate with students in March. Waivers to the PhD deadlines, timing requirements, and other rules may be requested from the Graduate Coordinator. Waivers are only given under extraordinary circumstances. A limited number of the required courses may be waived up to 9 credit hours if the student has already completed an equivalent course and can demonstrate proficiency with the material. They should work with their advisor and the Graduate Committee to request a waiver. Students requesting course waivers must make their request prior to submitting their formal Plan of Study in their first semester.
  • Required Deadlines:
    First year: Course work
      • Fall semester: File plan of study
      • Spring semester: Form committee
    Second year: Course work
      • Fall semester: Form committee, if not yet completed
      • Spring semester: Oral and Written comprehensive exams
    Third year: Defend proposal/Field work/Data collection
      • Fall semester: Defend dissertation proposal by the end of semester
      • Fall and Spring semesters: Collect data/conduct fieldwork as necessary
    Fourth year: Dissertation writing

Graduate Certificate in GIS and Spatial Analysis

CERTIFICATE CODE - CG37

Complete 4 of the following courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARE 729</td>
<td>Spatial Econometrics</td>
</tr>
<tr>
<td>or ECON 729</td>
<td>Spatial Econometrics</td>
</tr>
<tr>
<td>RESM 540</td>
<td>Geospatial Modeling</td>
</tr>
<tr>
<td>RESM 575</td>
<td>Spatial Analysis for Resource Management</td>
</tr>
</tbody>
</table>
RESM 545  Spatial Hydrology and Watershed Analysis
RESM 640  Geographic Information Systems for Aquatic Resource Management
GEOG 550  Geographic Information Science
GEOG 651  Geographic Information Science: Technical Issues
GEOG 654  Environmental Geographic Information Systems Modeling
GEOG 655  Remote Sensing Principles
GEOG 753  Exploratory Spatial Data Analysis
GEOG 755  Advanced Remote Sensing

Independent Study Requirement:  3

RESM 585  GIS and Spatial Analysis Project

Total Hours  15

* Students must take at least one of the course offerings from RESM/ARE/ECON (not counting RESM 585) and one from the GEOG course list.

**Major Learning Outcomes**

**GEOGRAPHY**

The Graduate Program in Geography at West Virginia University trains students at the highest level to assume leadership roles in research, teaching, and applied work in Human Geography, Environmental Geography, and Geographic Information Science.

**M.A. Program**

- Master the existing scholarship in the study of Geography with the goal of using this scholarship in the pursuit of their own professional and/or research field.
- Conduct research in their area of specialization or engage in an applied geography project oriented to their professional goals.
- Prepare to be professionals in careers that require training at a high level in Geography.

**Ph.D. Program**

- Master the existing scholarship in the study of Geography with the goal of using this scholarship in the pursuit of their own research.
- Engage in and conduct original research in their area of specialization.
- Prepare to be professionals in careers that require training at the highest level in Geography.

The Geography Graduate Committee regularly reviews the structure and content of the M.A. and Ph.D. programs to provide the best possible education to students in order to meet the needs for highly trained individuals in Human Geography, Environment Geography, and Geographic Information Science.