

CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEMS, BS

REQUIREMENTS

UNIVERSITY REQUIREMENTS

All undergraduate students must complete both the following Core General Education (Core GenEd) and University Degree and Quality of Work requirements. The requirements below apply to students whose first term at UW-Madison or whose earliest post-high school college attendance at any institution is Summer 2026 or later.

Students whose first term at UW-Madison or whose earliest post-high school college attendance at any institution occurred before Summer 2026 should refer to the archived Guide (<https://guide.wisc.edu/archive/>) for the requirements that apply to them.

CORE GENERAL EDUCATION (CORE GENED) REQUIREMENTS

Civics & Perspectives 3 credits of Civics & Perspectives coursework.

Communication & Literacy 6 credits of Communication & Literacy coursework. This requirement may be partially satisfied by a qualifying placement test score. More information: <https://go.wisc.edu/qualifyingenglishplacement> (<https://go.wisc.edu/qualifyingenglishplacement/>)

Humanities & Arts 6 credits of Humanities & Arts coursework.

Mathematics & Quantitative Reasoning 6 credits of Mathematics & Quantitative Reasoning coursework. This requirement may be partially satisfied by a qualifying placement test score. More information: <https://go.wisc.edu/qualifyingmathplacement> (<https://go.wisc.edu/qualifyingmathplacement/>)

Natural Science & Wellness Complete both:

- 6 credits of Natural Science & Wellness or Natural Science & Wellness + Laboratory coursework.
- one course must be in Natural Science & Wellness + Laboratory coursework.

Social & Behavioral Science 3 credits of Social & Behavioral Science coursework.

Total Credits 30 credits.

For more information see the policy (<https://policy.wisc.edu/library/UW-1095/>).

UNIVERSITY DEGREE AND QUALITY OF WORK REQUIREMENTS

All undergraduate degree recipients must complete the following minimum requirements. Requirements for some programs will exceed these requirements; see program requirements for additional information.

Total Degree 120 degree credits.

Residency Complete 30 credits in residence. A course is considered "in residence" if it is taken when in undergraduate degree-seeking status and:

- is offered by UW-Madison and completed on the UW-Madison campus or at an approved off-site location, or
- is offered by UW-Madison in an online or distance format, or is completed during participation in a UW-Madison study abroad/study away program.

Quality of Work Achieve at least the minimum grade point average specified by the school, college, and/or academic program.

Math Demonstrate minimal mathematics competence by:

- placing above MATH 96, or
- successfully completing MATH 96, or
- successfully completing a more advanced mathematics course such as MATH 112, MATH 113, MATH 114, MATH 141, MATH 211, or MATH 221.

English Language If required to take the UW-Madison English as a Second Language Assessment Test (MSN-ESLAT), demonstrate minimal English language competence by:

- earning credit for ESL 118, or
- achieving a qualifying MSN-ESLAT placement test score.

Language Complete one:

- 2 high school units of a single language other than English, or
- one course with the second semester Language designation.

Major Declaration Declare and complete the requirements for at least one major.

COLLEGE OF LETTERS & SCIENCE DEGREE REQUIREMENTS: BACHELOR OF SCIENCE (BS)

Students pursuing a Bachelor of Science degree in the College of Letters & Science must complete all of the requirements below. Some courses satisfy more than one L&S degree requirement (visit College of Letters & Science: Requirements (<https://guide.wisc.edu/undergraduate/letters-science/#requirementstext>) for details).

This major can be paired with either the Bachelor of Arts or the Bachelor of Science degree requirements.

BACHELOR OF SCIENCE DEGREE REQUIREMENTS

Communication Complete both:

- Part A: one course with the Communication A designation or eligible UW Placement Score; and
- Part B: one course with the Communication B designation

Quantitative Reasoning Complete both:

- Part A: one course with the Quantitative Reasoning A designation or eligible UW Placement Score; and
- Part B: one course with the Quantitative Reasoning B designation

Ethnic Studies one 3+ credit course with the Ethnic Studies designation

Language the third unit of a language other than English

Mathematics Complete two courses of 3+ credits at the Intermediate or Advanced level in MATH, COMP SCI, or STAT subjects. A maximum of one course in each of COMP SCI and STAT subjects counts toward this requirement.

L&S Breadth: Humanities Complete 12 credits with the Humanities or Literature designation, which must include at least 6 credits with the Literature designation.

L&S Breadth: Social Sciences Complete 12 credits with the Social Science designation.

L&S Breadth: Natural Sciences Complete 12 credits, which must include both:

- 6 credits with the Biological Science designation, and
- 6 credits with the Physical Science designation.

Liberal Arts and Science (LAS) Coursework at least 108 credits

Depth of Intermediate/Advanced Coursework at least 60 credits at the Intermediate or Advanced level

Major Declare and complete at least one major.

Total Credits at least 120 credits

UW-Madison Experience

- 30 credits in residence, overall, and
- 30 credits in residence after the 86th credit

Quality of Work

- 2.000 in all coursework at UW-Madison
- 2.000 in Intermediate/Advanced level coursework at UW-Madison

NON-L&S STUDENTS PURSUING AN L&S MAJOR

Non-L&S students who have permission from their School/College to pursue an additional major within L&S only need to fulfill the major requirements. They do not need to complete the L&S Degree Requirements above.

REQUIREMENTS FOR THE MAJOR BREADTH

3 courses, 1 each from these areas:

Code	Title	Credits	
Human Geography (1 course)			
GEOG 101	Human Geography: Space, Place, Society, and Politics	3	
GEOG 104	Introduction to Human Geography		
GEOG/ART HIST/ ENVIR ST/ HISTORY/ LAND ARC 239	Making the American Landscape		
GEOG 300	Weird Geographies	3	
GEOG 301	Revolutions and Social Change		
GEOG 302	Economic Geography: Locational Behavior		
GEOG/ URB R PL 305	Introduction to the City	3	
GEOG 307	International Migration, Health, and Human Rights		
GEOG/CHICLA/ GEN&WS 308	Latinx Feminisms: Women's Lives, Work, and Activism		
GEOG/ INTL ST 311	The Global Game: Soccer, Politics, and Identity	3	
GEOG/ INTL ST 315	Universal Basic Income: The Politics Behind a Global Movement		
GEOG 318	Introduction to Geopolitics		
GEOG 340	World Regions in Global Context	3	
GEOG 342	Geography of Wisconsin		
GEOG 355	Africa, South of the Sahara		
GEOG 358	Human Geography of Southeast Asia	3	
GEOG/ AMER IND 410	Critical Indigenous Ecological Knowledges		
GEOG 501	Space and Place: A Geography of Experience		
GEOG/ URB R PL 503	Researching the City: Qualitative Strategies	3	
GEOG/ GEN&WS 504	Feminist Geography: Theoretical Approaches		
GEOG/ URB R PL 505	Urban Spatial Patterns and Theories		
GEOG 507	Waste Geographies: Politics, People, and Infrastructures	3	
GEOG 510	Economic Geography		
GEOG 511	Critical Social Theory		
GEOG 513	Queer Geographies	3	
GEOG/ GEN&WS 514	Feminist Geography: Methodological Approaches		
GEOG 515	Trans Autotheories		
GEOG 518	Power, Place, Identity	3	
People-Environment (1 course)			

GEOG/ ENVIR ST 139	Global Environmental Issues
GEOG/ ATM OCN/ ENVIR ST 131	Climate Change, Climate Action: The Social Dimensions of Climate Change
GEOG/ART HIST/ ENVIR ST/ HISTORY/ LAND ARC 239	Making the American Landscape
GEOG/ ENVIR ST 309	People, Land and Food: Comparative Study of Agriculture Systems
GEOG/ ATM OCN/ ENVIR ST 332	Global Warming: Science and Impacts
GEOG/ ENVIR ST 333	Green Urbanism
GEOG/ ENVIR ST 336	International Environmental Governance
GEOG/ ENVIR ST 337	Nature, Power and Society
GEOG/ BOTANY 338	Environmental Biogeography
GEOG/ ENVIR ST 339	Conservation and Climate Change - Local to International Strategies
GEOG 340	World Regions in Global Context
GEOG 344	Changing Landscapes of the American West
GEOG/ AMER IND/ ENVIR ST 345	Caring for Nature in Native North America
GEOG 359	Australia: Environment and Society
GEOG/ AMER IND 410	Critical Indigenous Ecological Knowledges
GEOG/ENVIR ST/ URB R PL 431	Planning for Resilience to Natural Hazards
GEOG/C&E SOC/ ENVIR ST 434	People, Wildlife and Landscapes
GEOG/ ENVIR ST 439	US Environmental Policy and Regulation
GEOG/ENVIR ST/ HISTORY 460	American Environmental History
GEOG/ SOIL SCI 526	Human Transformations of Earth Surface Processes
GEOG/ ENVIR ST 534	Environmental Governance: Markets, States and Nature
GEOG/ ENVIR ST 537	Culture and Environment
GEOG 538	The Humid Tropics: Ecology, Subsistence, and Development
GEOG/ ENVIR ST 557	Development and Environment in Southeast Asia
Physical Geography (1 course) 3	
GEOG/ ENVIR ST 120	Introduction to the Earth System
GEOG/ ENVIR ST 127	Physical Systems of the Environment

GEOG/ GEOSCI 320	Geomorphology
GEOG/ ATM OCN/ ENVIR ST 322	Polar Regions and Their Importance in the Global Environment
GEOG/ ATM OCN/ ENVIR ST 332	Global Warming: Science and Impacts
GEOG/ ATM OCN/ ENVIR ST/ GEOSCI 335	Climatic Environments of the Past
GEOG/ BOTANY 338	Environmental Biogeography
GEOG 342	Geography of Wisconsin
GEOG 344	Changing Landscapes of the American West
GEOG/ GEOSCI 420	Glacial and Pleistocene Geology
GEOG 523	Advanced Paleocology: Species Responses to Past Environmental Change
GEOG/ SOIL SCI 525	Soil Geomorphology
GEOG/ SOIL SCI 526	Human Transformations of Earth Surface Processes

Total Credits 9

SKILLS, TECHNIQUES & METHODOLOGY

Code	Title	Credits
Core Cartography/GIS		
GEOG 370	Introduction to Cartography	4
GEOG/ENVIR ST/ G L E/GEOSCI/ LAND ARC 371	Introduction to Environmental Remote Sensing	3
or GEOG 379	Geospatial Technologies: Drones, Sensors, and Applications	
GEOG/CIV ENGR/ ENVIR ST 377	An Introduction to Geographic Information Systems	4
GEOG 378	Introduction to Geocomputing	4
Quantitative Methods (1 course)		3-4
GEOG 560	Advanced Quantitative Methods	
STAT 240	Data Science Modeling I	
STAT 301	Introduction to Statistical Methods	
STAT 324	Introduction to Statistics for Science and Engineering	
STAT 371	Introductory Applied Statistics for the Life Sciences	
Mathematics Proficiency		6
Complete one of the following by Placement or by completing the course		
MATH 112 & MATH 113	College Algebra and Trigonometry	
MATH 114	Precalculus	

Total Credits 24-25

DEPTH

Code	Title	Credits
Complete two of:		
GEOG/ENVIR ST/ LAND ARC/ URB R PL 532	Applications of Geographic Information Systems in Planning	7-8
GEOG 572	Graphic Design in Cartography	
GEOG 573	Advanced Geocomputing and Geospatial Big Data Analytics	
GEOG 574	Geospatial Database Design and Development	
GEOG 575	Interactive Cartography & Geovisualization	
GEOG 576	Geospatial Web and Mobile Programming	
GEOG 578	GIS Applications	
GEOG 579	GIS and Spatial Analysis	
Total Credits		7-8

- Complete at least one advanced-level course OR 6 credits of honors credits in the major at the 300 level or above
- Complete a two-semester Senior Honors Thesis in GEOG 681 Senior Honors Thesis and GEOG 682 Senior Honors Thesis, a piece of original research composition, for a total of 6 credits.

CAPSTONE

Code	Title	Credits
Complete one of:		
GEOG 565	Colloquium for Undergraduate Majors	3-6
GEOG 681 & GEOG 682	Senior Honors Thesis and Senior Honors Thesis	
GEOG 691 & GEOG 692	Senior Thesis and Senior Thesis	
Total Credits		3-6

RESIDENCE AND QUALITY OF WORK

- 2.000 GPA in GEOG and major courses
- 2.000 GPA on 15 upper-level credits, taken in residence²
- 15 credits in GEOG, taken on the UW–Madison campus

² GEOG courses designated Intermediate/Advanced are upper level in this major.

HONORS IN THE MAJOR

Students may declare Honors in the Cartography and GIS Major in consultation with the Geography undergraduate advisor.

HONORS IN THE CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEMS MAJOR REQUIREMENTS

To earn Honors in the Major in Cartography and Geographic Information Systems, students must satisfy both the requirements for the major (above) and the following additional requirements:

- Earn a 3.300 overall university GPA
- Earn a 3.300 GPA for all GEOG courses, and all courses accepted in the major
- Complete GEOG 578: GIS Applications with a grade of B or better