

Proposal for a New Minor in Geospatial Literacy

- I. Title: *Minor in Geospatial Literacy*
- II. Academic year of intended implementation: *2016-2017*
- III. Name of the department and college submitting the proposal:
Department of Geography and Planning
College of Behavioral and Social Sciences
- IV. Statements on questions of need and demand.
 - A. Relation of the minor to the University [Strategic Plan](#).
The Minor in Geospatial Literacy embraces all six university strategies, however, this proposal is most aligned with strategic priorities #1 and #3:
 1. Believing in the primacy of learning, we will continue to develop high-quality learning environments both inside and outside the classroom.

The proposed minor combines existing complementary courses from a diverse group of disciplines to create a high quality platform for geospatial learning. The minor is designed so that students will gain experience with geospatial literacy, which will complement their academic majors. It is increasingly necessary for practitioners in most disciplines to have a substantial background in geospatial literacy, which is valuable in a broad variety of disciplines such as business, biology, ecology, economics, agriculture, etc.
 3. Believing in the wise use of new technologies in learning and teaching, we will continue to provide the technology, the related training, and the support needed to create high quality learning environments both inside and outside the classroom.

The proposed minor is designed to introduce students to several foundational aspects of geospatial information to help support complementary disciplines. The minor will provide students with knowledge of the following important technologies: Geographic Information Systems (GIS), Global Positioning Systems (GPS), and introductory Web-mapping. They will use these skills in their professional careers or in pursuing graduate studies
 - B. Need for the proposed minor.

During the past decade students from a variety of majors (Geological and Environmental Sciences, Anthropology, History, Social Science, and Agriculture) have enrolled in the Geography and Planning Department's (GEOP) introductory geospatial techniques courses (GEOG 119, 211, 219

and 313) independent of a minor, a major or certificate. During the past three years, non-geography students have comprised at least 25% of students in GEOG 219. Students enroll in these courses because they have become aware that geospatial literacy and a basic knowledge of maps, GIS and GPS are critical skills for their respective disciplines.

*Support for this minor and its content is evidenced by the willingness of the departments of Geological and Environmental Sciences, **Computer Information Systems**, Anthropology, **Biology**, Business Information Systems, Health and Community Services, Recreation, Hospitality, and Parks Management, and the College of Agriculture to offer most of the minor's elective courses.*

C. Identify other closely related curricula currently offered by the campus.

GEOG offers a 21-unit certificate in Geospatial Technology. No other department offers curricula in geospatial literacy.

1. Explain the impact the proposed minor will have on these programs.

*The Geospatial Technology certificate is comprised solely of geography courses and is designed for students who aspire to careers in geospatial technology. The minor in **geospatial literacy** is interdisciplinary. It is designed for students who aspire to careers associated with their respective fields of study. The Minor in **Geospatial Literacy** will enhance their undergraduate preparation and not impact the certificate in Geospatial Technology.*

2. Explain how current programs do not meet the proposed minor's objectives.

The certificate in Geospatial Technology is not interdisciplinary. It was designed for students who aspire to have careers in geospatial technology. As such, it includes four required courses (418, 411 and 413) that are highly technical and beyond the scope of an interdisciplinary minor.

The Minor in Geography provides broad overview of the discipline. It does not provide a thorough grounding in geospatial literacy or technology.

D. Student demand for the minor.

The fact that at least 25% of the students in GEOG 219 come from other disciplines demonstrates significant demand for skills in geospatial literacy. The rapid spread of GIS and GPS into diverse

disciplines and careers will cause that demand to increase. For example, agriculture students must learn precision agriculture which is so-named because of the high level of precision afforded by geospatial data such as aerial or satellite remote sensing and technologies such as GIS and GPS.

V. *Resources*

- A. List the faculty members for the required courses in the minor.

GEOG 211

Name: *Xining Yang-*
Rank: *Assistant professor*
Appointment status: *Full time*
Highest degree earned: *PhD*
Date and Field of highest degree: *2015 Geography*
Professional experience: *Begins as assistant professor in Department of Geography and Planning in fall of 2015.*

GEOG 219

Name: *Nori Sato-*
Rank: *Associate professor*
Appointment status: *Full time*
Highest degree earned: *PhD*
Date and Field of highest degree: *2008 Geography*
Professional experience: *Currently associate professor in Department of Geography and Planning.*

GEOG 103I

Name: *Dean Fairbanks*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*
Date and Field of highest degree: *2001 Geography*
Professional experience: *Currently professor in Department of Geography and Planning.*

GEOG 103I

Name: *LaDona Knigge*
Rank: *Associate professor*
Appointment status: *Full time*
Highest degree earned: *PhD*
Date and Field of highest degree: *2006 Geography*
Professional experience: *Currently associate professor in Department of Geography and Planning.*

GEOG 311

Name: *Xining Yang-*
Rank: *Assistant professor*
Appointment status: *Full time*
Highest degree earned: *PhD*
Date and Field of highest degree: *2015 Geography*
Professional experience: *Begins as assistant professor in Department of Geography and Planning in fall of 2015.*

Name: *Dean Fairbanks*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*
Date and Field of highest degree: *2001 Geography*
Professional experience: *Currently professor in Department of Geography and Planning.*

- B. List the faculty members for the elective courses in the minor by
Students will pick 6 upper division units of elective courses from the list below.

ANTH 380, ANTH 484

Name: *Matthew O'Brien*
Rank: *Assistant professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

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Name: *Georgia Fox*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*
CINS 370

Name: *Dr. Essia Hamouda*
Rank: *Assistant professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

Name: *Dr. Jaime Raigoza*
Rank: *Lecturer*
Appointment status: *full time next semester*
Highest degree earned: *PhD*

CINS 465

Name: *Dr. Tyson Henry*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

GEOS 325, GEOS 360, GEOS 471

Name: *Rachel Teasdale*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

GEOS 380, GEOS 390

Name: *Karin Hoover*
Rank: *Associate Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

GEOS 572

Name: *Russell Shapiro*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

GEOS 410

Name: *David Brown*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

HCSV 362: Environmental Health

Name: *Diana Flannery*
Rank: *Professor*
Appointment status: *Regular*
Highest degree earned: *PhD*

HCSV 425: Research & Evaluation

Name: *Lyndall Ellingson*
Rank: *Professor*
Appointment status: *Regular*
Highest degree earned: *PhD*

Name: *Roland Lamarine*
Rank: *Professor*
Appointment status: *FERP works full-time in the fall and does not work in the spring.*
Highest degree earned: *PhD*
HCSV 463: Epidemiology

Name: *Lyndall Ellingson*
Rank: *Professor*
Appointment status: *Regular*
Highest degree earned: *PhD*

MINS 335

Name: *Jaime Raigoza*
Rank: *Lecturer*
Appointment status: *Full time*
Highest degree earned: *MBA*

MINS 526

Name: *Lorraine Gardiner*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

AGET 340

Name: *Michael Spiess*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

PSSC 330

Name: *Kasey DeAtley*
Rank: *Assistant professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

PSSC 356

Name: *Garrett Lilesd*
Rank: *Assistant Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

RECR 400

Name: *Richard Gitelson*
Rank: *Associate professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

RECR 440

Name: *Brett Eldredge*
Rank: *Lecturer*
Appointment status: *Full time*
Highest degree earned: *PhD*

RECR 446

Name: *Jon Hooper*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

BIOL 350

Name: *Colleen Hatfield*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

BIOL 451

Name: *Dr. Kristina A. Schierenbeck*
Rank: *Professor*
Appointment status: *Full time*
Highest degree earned: *PhD*

- C. List the resources needed to sustain the program for the first five years, including cost and funding source.

The Minor in Geospatial Literacy is an innovative model of synergy and efficiency. It combines a collection of existing required complementary courses and/or General Education courses in GEOP and several other departments. Of the core courses, two are required for the major in geography and planning, GEOG 211 and GEOG 219, and thus are offered every semester so there are no additional resources needed to offer these courses. GEOG 311 is required for the Certificate in Geographic Information Systems Technology, and thus is offered every semester so there are no additional resources needed to offer this course. GEOG 103

is a course in the GE Pathway Minor in Science, Technology and Values and in the GE Requirements and is offered every semester. All of the elective courses are required for their respective disciplines. As such they are offered on a regular schedule. Hence, no courses will be created and no faculty will need to be hired to offer this minor. No additional resources will be needed to fund this minor over the next five years.

Faculty: *Existing*
Staff: *None*
Facilities: *Computer lab in Butte 501*
Library resources: *None*
Equipment: *None*
Specialized material: *None*

- D. Additional support resources required, including source of support.
All of the courses in the minor's core are required and offered every semester. All of the elective courses are required in several disciplines. As such they are offered on a regular schedule. Hence, no courses will be created and no faculty will need to be hired to offer this minor. The only change necessitated by this minor is increased advising. However, that is already part of faculty responsibilities and will be internalized by GEOP faculty.

VI. Curriculum

Note: Proposed curriculum should take advantage of courses already offered in other departments when subject matter would otherwise overlap or duplicate existing course content.

- A. Total number of units required for the minor: *18 units*
- B. List all new courses for the proposed program.
No new courses are required for the proposed program.
- C. List all required courses for the minor.
4 required:

GEOG 103I- Mobile, Wired, and Tracked: Our Digital Planet, 3 units.

GEOG 211- Introduction to Geographical Information Systems, 3 units.

GEOG 219- Introduction to Geographic Methods, 3 units.

GEOG 311- GIS Concepts and Techniques, 3 units.

List all elective courses for the minor.

At least 6 upper division units must be chosen from the list below.

Elective Courses

<i>ANTH 380</i>	<i>Field Archaeology</i>
<i>ANTH 484</i>	<i>Archaeological Site Surveying</i>
<i>BIOL 350</i>	<i>Fundamentals of Ecology</i>
<i>BIOL 451</i>	<i>Plant Geography</i>
<i>CINS 370</i>	<i>Introduction to Databases</i>
<i>CINS 465</i>	<i>Web Programming Fundamentals</i>
<i>GEOS 325</i>	<i>Geology of California</i>
<i>GEOS 360</i>	<i>Field Methods</i>
<i>GEOS 380</i>	<i>Hydrology</i>
<i>GEOS 390</i>	<i>Surficial Processes</i>
<i>GEOS 410</i>	<i>Introduction to Watershed Hydrology</i>
<i>GEOS 471</i>	<i>Field Geology</i>
<i>GEOS 572</i>	<i>Advanced Field Geology</i>
<i>HCSV 362:</i>	<i>Environmental Health</i>
<i>HCSV 425:</i>	<i>Research & Evaluation</i>
<i>HCSV 463:</i>	<i>Epidemiology</i>
<i>MINS 335</i>	<i>Database Application Development</i>
<i>MINS 526</i>	<i>Business Intelligence and Data Warehousing: Design and Development</i>
<i>AGET 340</i>	<i>GPS & GIS in Agriculture and Natural Resource Management</i>
<i>PSSC 330</i>	<i>Rangeland Resources and Management</i>
<i>PSSC 356</i>	<i>Soil Quality and Health</i>
<i>RECR 400</i>	<i>Management of Recreation Parks</i>
<i>RECR 440</i>	<i>Environmental and Comprehensive Planning for Recreation</i>
<i>RECR 446</i>	<i>Natural Resources Management</i>

- D. Explain provisions for articulation of the proposed minor with community college courses.

GEOG 211- Introduction to Geographical Information Systems is articulated with an equivalent course at the community college level (C-ID 150).

GEOG 219 – Introduction to Geographic Methods is articulated with an equivalent course at the community college level (C-ID 155).

- E. Complete catalog copy, including admission and completion requirements. See the current University Catalog for correct format; please follow it exactly. Before the proposal is submitted to Academic Affairs, it may be helpful to review catalog copy with Academic Publications.

Complete catalog copy

The Minor in Geospatial Literacy

Course Requirements for the Minor: 18 units

The following courses, or their approved transfer equivalents, are required of all candidates for this minor.

4 courses required:

GEOG 103I Mobile, Wired, and Tracked: Our Digital Planet	3.0 FS	GE
GEOG 211 Introduction to Geographical Information Systems	3.0 FS	
GEOG 219 Introduction to Geographic Methods	3.0 FS	
GEOG 311 GIS Concepts and Techniques	3.0 SP	

Electives: 6 units

At least 6 units must be chosen from the list below.

ANTH 380 Field Archaeology 4.0 F1

ANTH 484 Archaeological Site Surveying 3.0^{F2}

CINS 370 Introduction to Databases 3.0 SP

Prerequisites: CSCI 211 with a grade of C- or higher.

CINS 465 Web Programming Fundamentals 3.0 FA

Prerequisites: CINS 370 with a grade of C- or higher.

GEOS 325 Geology of California 3.0 S2

Prerequisites: GEOS 101 or GEOS 102 or consent of instructor.

GEOS 360 Field Methods 2.0 SP

Prerequisites: GEOS 306, GEOS 307.

GEOS 380 Hydrology  3.0 FA

Prerequisites: PHYS 202A or PHYS 204A (may be taken concurrently).

GEOS 390 Surficial Processes  3.0 F1

Prerequisites: MATH 120; either PHYS 202A or PHYS 204A.

GEOS 410 Introduction to Watershed Hydrology  3.0 SP

Prerequisites: GEOS 380 or prior hydrology course work and consent of instructor.

GEOS 471 Field Geology 2.0 SP

Prerequisites: GEOS 360, GEOS 361, GEOS 408 (with grade of C- or higher in all courses).

GEOS 572 Advanced Field Geology 2.0 SP
Prerequisites: GEOS 403, GEOS 471 both with a grade of C- or higher.

HCSV 362 Environmental Health  3.0 FS

HCSV 425 Research and Evaluation in Health 3.0 FS WP
Prerequisites: ENGL 130 or JOUR 130 (or equivalent) with a grade of C- or higher,
MATH 105.


HCSV 463 Epidemiology 3.0 FS
Prerequisites: MATH 105. Recommended: HCSV 320.

MINS 335 Database Application Development 3.0 FS
Prerequisites: BSIS 301, MINS 235.

MINS 526 Business Intelligence and Data Warehousing: Design and
Development 3.0 SP
Prerequisite: MINS 235. Open only to BADM, BSIS and MBA majors

AGET 340 GPS & GIS in Agriculture and Natural Resource
Management  3.0 FA


PSSC 330 Rangeland Resources
and Management 3.0 FA

PSSC 356 Soil Quality and
Health  3.0 S2

Prerequisites: PSSC 250 or instructor permission.

RECR 400 Management of Recreation and Parks  3.0 FS WP


Prerequisites: ENGL 130 or JOUR 130 (or equivalent) with a grade of C- or higher,
successful completion of computer literacy requirement, RECR 200, RECR 301; one
course chosen from RECR 220, RECR 240, RECR 250, or RECR 260; senior standing.

RECR 440 Environmental and Comprehensive Planning for Recreation  3.0 FS

Prerequisites: RECR 200, concurrent enrollment in or prior completion of RECR 240 and RECR 300, completion of computer literacy requirement, or faculty permission.

RECR 446 Natural Resources Management  3.0 FA

Prerequisites: RECR 240, RECR 300, or faculty permission.

BIOL 350 Fundamentals of Ecology  3.0 FS WP

Prerequisites: ENGL 130 or JOUR 130 (or equivalent) with a grade of C- or higher; BIOL 152 or faculty permission.

BIOL 451 Plant Geography 3.0 FA

Prerequisites: BIOL 152, BIOL 369.

Attach [the New Minor signature form](#) to the front of the proposal and submit to Academic Affairs after all department and college reviews are complete.