CALIFORNIA STATE UNIVERSITY

SAN MARCOS

**Procedure for Submitting Proposals for New Options, Concentrations, Special Emphases and Minors**

1. **Name of the campus submitting the request, the full and exact title of the proposed aggregate of courses, and whether it is an option, concentration, special emphasis, or minor.**

California State University San Marcos

Minor in Geospatial Studies

**2. Full and exact title of the degree major program under which the aggregate of courses will be offered, where applicable.**

NA. This will be a stand-alone minor.

**3. Options, concentrations, or special emphases already existing under the degree major program for which the new aggregate of courses is proposed.**

NA

**4. Department(s) to offer the aggregate courses.**

Anthropology

Biology

History

Liberal Studies

Physics

Sociology

(Environmental Studies- not yet a department or program)

**5. Purpose of the proposed aggregate of courses.**

Geospatial analysis is used across many academic disciplines, including geography, urban and regional planning, linguistics, history, biology, sociology, physics, and anthropology. The purpose of the Geospatial Studies minor is to provide students with the skills necessary to think critically about disciplinary-based issues which lend themselves to spatial analysis.

**6. Need for the proposed aggregate of courses.**

Among current degree offerings, none provide students with expertise in geospatial critical thinking and problem solving. The ability to think geospatially, ask appropriate geospatial questions of the material at hand, and apply geospatial tools is a valued workplace skill for many jobs in government, non-governmental organizations, the private sector, academia, and consulting. This minor provides students with the opportunity to develop their expertise while working toward degree completion. Combined with any of the undergraduate majors at CSUSM it adds a marketable set of skills and knowledge not provided by any other CSUSM curricular program.

**7. List of the courses, by catalog number, title, and units of credit, as well as total units to be required under the proposed aggregate of courses.**

Units

Required Introduction to GIS, LD Preparation Class (3-4 units), choose one:

ENVS 210 Research Methods: Introduction to GIS 3

GEOG 130 Introduction to GIS and GIS Software 3

Required GIS and Geospatial Technical Skills LD Prep Classes (6 units):

GEOG 232 GIS Database Management and Data Acquisition 3

GEOG 236 Intermediate ArcGIS: GIS Analysis 3

Required Geospatial Technical Components UD Classes (6 units):

GEOG 330 GIS Explorations across the Curriculum 3

GEOG 491 Geospatial Internship 3

Elective Geospatial Technical Components UD Class (3-4 units), choose one:

BIOL 533 GIS Applications in Landscape Ecology 4

BRS 301 Research Methods in Border Studies 3

GEOG 320 Patterns of San Diego County 3

HIST 394 History and GIS 3

PHYS 402 Computer Interfacing and Control 4

PHYS 403 Signals and Systems Processing 3

Elective Geospatial UD Class, (3-4 units), choose one:

ANTH 375 Indigenous Anthropology 3

ANTH 380 Current Archaeology 3

BRS 300 Borders: Interdisciplinary Perspectives 3

BRS 330 Introduction to Migration Studies 3

BRS 364 Trade Routes: Pathways Across Borders 3

BRS 400 Comparative Border Studies 3

BRS 453 Border Water Conflicts 3

ENVS 320 Environmental and Land-Use Design 3

GEOG 305 The U.S.-Mexico Border 3

GEOG 341 Nature and Society in California 3

GEOG 365 Globalization and Trade 3

GEOG 460 Food Systems and Emerging Markets 3

LBST 307 Children and the Environment 3

SOC 311 Inequality 4

SOC 313 Race/Ethnic Relations 4

Total Units: 21-24

**8. List of courses, by catalog number, title, and units of credit as well as total units to be required for the major in which the proposed aggregate of courses is to be included.**

NA; there is no Geospatial Studies major.

**9. New courses to be developed. Include proposed catalog descriptions.**

*GEOG 130 Introduction to GIS and GIS Software 3*

An introduction to the mapping sciences with a primary focus on Geographic Information Systems (GIS). Covers the trends, history, structure, application, hardware and software, and basic operations of GIS. Related technologies to be examined include mapping, aerial and satellite imagery, and Global Positioning Systems (GPS). The lab portion provides training in the use of ArcGIS software including identifying, evaluating, and inputting spatial data, developing and using raster and vector data, converting data, and applying programming with GIS software.

*GEOG 232 GIS Database Management and Data Acquisition 3*

Provides students with knowledge and practical experience in the fundamentals of database management, and the acquisition, conversion, and creation of spatial data within Geographic Information Systems (GIS). Topics include strategic design, querying, modeling techniques, data appropriateness and accuracy, hardware and software requirements, conversion of digital data, creating digital data using digitizers, scanners and Global Positioning Systems (GPS), and utilization of remote sensing, photogrammetry, and web-based data. This course provides hands-on experience with database management and data acquisition using ArcGIS software.

*GEOG 236 Intermediate ArcGIS: GIS Analysis 3*

Focus on performing complex operations using ArcGIS software. Students will gain hands-on experience in advanced querying operations, Spatial Analyst and Network Analyst, coordinate geometry, ArcGIS ModelBuilder, and the application of ArcGIS in a variety of disciplines.

*GEOG 330 GIS Explorations across the Curriculum 3 3*

Students learn state-of-the-art GIS skills through problem-based learning.   Through real world examples taken from across the curriculum, students develop advanced knowledge of current data sources and  digital tools while honing spatial analysis and map-making skills. *Cannot be taken for credit if student has taken ID 370-7 Applied GIS for the Social Sciences.*

*GEOG 491 Geospatial Internship 3*

Faculty-sponsored academic internship in workplace use of Geographic Information Systems and other tools of spatial analysis.

*HIST* 394 *History and GIS 3*

This course is an introduction to the use of mapping and geographic information systems as an aid in understanding the economic, social and cultural history of the United States, although we also consider other geographic regions. It takes several historical developments that have geographic components, and after discussing possible interpretations of their nature and impact, it analyzes what GIS can do to deepen our understanding. In addition to reading about these events, we will use GIS websites, as well as acquiring a basic knowledge of GIS software as it relates to historical analysis.

**10. List of all present faculty members, with rank, appointment status, highest degree earned, date and field of highest degree, and professional experience, who would teach in the proposed aggregate of courses.**

Matthew Atherton

Assistant Professor of Sociology

Ph.D. Crime, Law and Justice (The Pennsylvania State University 2005)  
Faculty member at CSUSM since 2007

Bonnie Bade

Professor of Medical Anthropology

Ph.D. Anthropology (UC Riverside 1994)

Faculty member at CSUSM since 1994

Jeff Charles

Associate Professor of History

Ph.D. History (Johns Hopkins University 1987)

Faculty member at CSUSM since 1995

Kim Knowles-Yánez

Professor of Liberal Studies

Ph.D. Urban and Regional Planning (University of IL- Urbana-Champaign, 1997)

Faculty member at CSUSM since 1999

William Kristan

Associate Professor of Biology

Ph.D. Biology (UC Riverside 2001)

Faculty member at CSUSM in TT since 2006 (and as a lecturer since 2003)

Konane Martinez

Assistant Professor of Anthropology

Ph.D. Anthropology (UC Riverside, 2005)

Faculty member at CSUSM since 2007

Laurette McGuire

Assistant Professor of Anthropology

Ph.D. Anthropology (UC Riverside, 2012)

Faculty member at CSUSM since 2011

Edward Price

Associate Professor of Physics

Ph.D. Physics (UCSD, 2001)

Faculty member at CSUSM since 200?)

Theresa Suarez  
Assistant Professor of Sociology  
Ph.D. Ethnic Studies (UC San Diego, 2008)  
Faculty member at CSUSM since 2008

**11. Additional instructional resources (faculty, space, equipment, library volumes, etc.) needed to implement and sustain the proposed aggregate of courses. List all resources needed for the first five years beyond those currently projected, including specific resource, cost, and source of funding.**

We currently have the following key resources on campus:

* ESRI GIS, Community Analyst, and Business Analyst software, renewed on an annual basis by IITS, $4,500

Other GIS software available as shareware on-line (i.e. Google Earth, ArcGIS Online, ArcGIS Explorer Online, GRASS GIS, QGis)

* IITS positions in GIS instructional support (Allen Risley, plus a student assistant TBD)
* GIS Technician Office next to the GIS Teaching Lab in SBSB 1108
* GIS Teaching Lab Classroom in SBSB 1108
* GIS Map Room in SBSB, also next to the GIS Teaching Lab, with a plotter, printer, scanner, map drawers, and light table
* 30 Juno series Trimble hand-held GPS units and software for student check-out

**12. Proposed catalog description.**

**MINOR IN GEOSPATIAL STUDIES**

**Office:**

Liberal Studies Department

4222 Social and Behavioral Science Building

**Telephone:**

**(760) 750-4104**

**Minor Advisor (or should this be Program Coordinator?):**

Kim Knowles-Yánez

**Faculty:**

*Anthropology:*

Bonnie Bade

Konane Martinez

Laurette McGuire

*Biology:*

William Kristan

*Geography:*

Greig Guthey

*History:*

Jeff Charles

*Liberal Studies:*

Kim Knowles-Yánez

*Physics:*

Edward Price

*Sociology:*

Matthew Atherton

Teresa Suarez

**Program Offered:**

* Minor in Geospatial Studies

Geospatial analysis is used across many academic disciplines, including geography, urban and regional planning, linguistics, history, biology, sociology, physics, political science, and anthropology. The purpose of the Geospatial Studies minor is to provide students with the skills necessary to think critically about disciplinary-based issues which lend themselves to spatial analysis. Classes for the minor include use of an array of tools for geospatial analysis, including Geographic Information Systems (GIS), Global Positioning Systems (GPS), and imaging and remote sensed software for analyzing and mapping spatial data. The ability to think geospatially, ask appropriate geospatial questions of the material at hand, and apply geospatial tools is a valued workplace skill for many jobs in government, the private sector, non-governmental organizations, academia, and consulting. Combined with any of the undergraduate majors at CSUSM the minor adds a marketable set of skills and knowledge.

Required Introduction to GIS, LD Preparation Class (3 units), choose one:

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GEOG 130 Introduction to GIS and GIS Software 3

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GEOG 236 Intermediate ArcGIS: GIS Analysis 3

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Elective Geospatial Technical Components UD Class (3-4 units), choose one:

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