GEOG 335

California State University San Marcos • NEW COURSE • FORM C

ORIGINATOR'S SECTION:

1. College:	Desired Term and Year of Implementation (e.g., Fall 2008):	
☒ CHABSS ☐ CoBA ☐ CoEHHS ☐ CSM	Fall 2017	

2.Course is to be considered for G.E.? (If yes, also fill out appropriate GE form*) ☐ Yes ☒ No

3. Course will be a variable-topics (generic) course? ☐ Yes ☒ No
("generic" is a placeholder for topics)

4. Course abbreviation and Number:* GEOG 335

5. Title: ***(Titles using jargon, slang, copyrighted names, trade names, or any non-essential punctuation may not be used.)***
Advanced Spatial Statistics and Analysis

6. Abbreviated Title for PeopleSoft:
(no more than 25 characters, including spaces)
Advanced Spatial Analysis

7. Number of Units: 3

8. Catalog Description: ***(Not to exceed 80 words; language should conform to catalog copy. Please consult the catalog for models of style and format; include all necessary information regarding consent for enrollment, pre- and/or corequisites, repeated enrollment, crosslisting, as detailed below. Such information does not count toward the 80-word limit.)***

Develops conceptual and practical skills in selecting and applying spatial analysis tools using Geographic Information Systems (GIS). Topics include measuring aspects of geometric features and identifying spatial patterns of geospatial objects represented as points, lines, networks, areal data, and 3-D surfaces. Advanced cartographic techniques are applied to analysis products for visualization and discussion. *Prerequisite: Completion of GEOG 120 or 121 with a grade of C (2.0) or better.*

9. Why is this course being proposed?

This course will meet requirements in four areas: 1) Geography major, 2) Geography minor, 3) Advanced GIS certificate, and 4) Fire Science major.

The course is one option to fulfill the proposed Bachelor of Arts, Geography major track requirements in Geographic Techniques. It is currently one option available to students pursuing a Geography minor. This course also serves as one course option for students working to fulfill the proposed Advanced Geographic Information Systems (GIS) certificate requirements. Additionally, the course is required as part of the proposed Bachelor of Science, Wildfire Science, offered through CSUSM-Temecula.

This course advances basic knowledge of GIS applications, skills, and techniques. The techniques acquired in the course increase competiveness of students seeking employment in any GIS-related fields, particularly those that require analytical skills beyond basic data management and map making.

10. Mode of Instruction*
For definitions of the Course Classification Numbers:
http://www.csusm.edu/academic_programs/curriculumscheduling/catalogcurricula/DOCUMENTS/Curricular_Forms_Tab/Instructional%20Mode%20Conventions.pdf

Type of Instruction	Number of Credit Units	Instructional Mode (Course Classification Number)
Lecture	3	C2
Activity		
Lab		

11. Grading Method:*
☒ Normal (N) *(Allows Letter Grade +/-, and Credit/No Credit)*
☐ Normal Plus Report-in-Progress (NP) *(Allows Letter Grade +/-, Credit/No Credit, and Report-in-Progress)*
☐ Credit/No Credit Only (C)
☐ Credit/No Credit or Report-in-Progress Only (CP)

12. If the (NP) or (CP) grading system was selected, please explain the need for this grade option.

13. Course Requires Consent for Enrollment? ☐ Yes ☒ No

* If Originator is uncertain of this entry, please consult with Program/Department Director/Chair.

☐ Faculty ☐ Credential Analyst ☐ Dean ☐ Program/Department - Director/Chair

14. Course Can be Taken for Credit More than Once? ☐ Yes ☒ No
If yes, how many times? (including first offering)

15. Is Course Crosslisted: ☐ Yes ☒ No

If yes, indicate which course and check "yes" in item #22 below.

16. Prerequisite(s): ☒ Yes ☐ No GEOG 120 OR GEOG 121

17. Corequisite(s): ☐ Yes ☒ No

18. Documentation attached:
☐ Syllabus ☒ Detailed Course Outline

19. If this course has been offered as a topic, please enter topic abbreviation, number, and suffix:*

20. How often will this course be offered once established?* At least once per year.

PROGRAM DIRECTOR/CHAIR - COLLEGE CURRICULUM COMMITTEE SECTION:
(Mandatory information – all items in this section must be completed.)

21. Does this course fulfill a requirement for any major (i.e., core course or elective for a major, majors in other departments, minors in other departments)? ☒ Yes ☐ No

If yes, please specify:
1) Proposed Geography major, 2) Geography minor, 3) Proposed Advanced GIS certificate, and 4) Proposed Fire Science major.

22. Does this course impact other discipline(s)? ***(If there is any uncertainty as to whether a particular discipline is affected, check "yes" and obtain signature.)*** ☒ Yes ☐ No

If yes, obtain signature(s). Any objections should be stated in writing and attached to this form.

Wildfire Science Discipline — See attached email (Signature) _____ (Date) ✓ Support _____ Oppose

Discipline _____ (Signature) _____ (Date) _____ Support _____ Oppose

SIGNATURES : (COLLEGE LEVEL) :

Elizabeth Ridder 11 April 2017
1. Originator (please print or type name) Date

Kim Knowles-Yánez 12/6/16
2. Program Director/Chair Date

4/12/17
3. College Curriculum Committee Date

4/12/17
4. College Dean (or Designee) Date

(UNIVERSITY LEVEL)

5. UCC Committee Chair Date

6. Vice President for Academic Affairs (or Designee) Date

7. President (or Designee) Date

Trailer ___
PS
Office of Academic Programs ~~Banner~~ Catalog Revised 3/28/2007

* If Originator is uncertain of this entry, please consult with Program/Department Director/Chair

RP ___

Angela Baggett

From: Carrick Williams
Sent: Wednesday, April 12, 2017 9:12 AM
To: Angela Baggett
Subject: Support from Wildfire Science For GEOG courses

Importance: High

From: Matthew Rahn
Sent: Tuesday, April 11, 2017 1:45 PM
To: Elizabeth Ridder <eridder@csusm.edu>
Cc: Carrick Williams <cawilliams@csusm.edu>
Subject: Re: Important: FW: CAPC REVIEW: GEOG 335 and 431
Importance: High

Good morning,
This is excellent timing and good news. The Wildfire Program will definitely be looking for our students to enroll in these courses, and will allow them to be taken as part of their upper division electives (it's a bit too late to get them into the P Form as it has been in review by the College). I am working right now on developing three additional tracks for credit certificate programs for wildfire science, one of which is a concentration in GIS. The forms for these new certificate programs will be completed this summer. This is exactly what we need to increase the rigor of the program, and meet the demands of the fire industry itself.

Matt Rahn, PhD, MS, JD
Director / Research Faculty
Environmental Leadership Institute
Wildfire Research Program
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43890 Margarita Rd., Temecula, CA 92592

California State University
SAN MARCOS

GEOG 335: Advanced Spatial Statistics and Analysis

Course Description

Develops conceptual and practical skills in selecting and applying spatial analysis tools using Geographic Information Systems (GIS). Topics include measuring aspects of geometric features and identifying spatial patterns of geospatial objects represented as points, lines, networks, areal data, and 3-D surfaces. Advanced cartographic techniques are applied to analysis products for visualization and discussion. *Prerequisite: Completion of GEOG 120 or 121 with a grade of C (2.0) or better.*

Student Learning Outcomes

Upon completion of the course, students will be able to

1. Demonstrate cartographic principles through map production.
2. Discuss the strengths, weaknesses, and assumptions of spatial analysis approaches.
3. Identify and apply spatial analysis approaches in their appropriate contexts.
4. Interpret and critically evaluate spatial analysis results.

Required Materials and Technology

Texts:
Suggested: Brewer, Cynthia, 2015, *Designing Better Maps, A Guide for GIS Users*, 2nd Ed., ESRI Press, 260 pages. ISBN13: 978-1589484405.

Required: Mitchell, Andy, 2005, *The ESRI Guide to GIS Analysis, Volume 2*, ESRI Press, 252 pages. ISBN13: 978-1589481169.

Technology: Every student must have regular access to a computer with a reliable (and preferably fast) internet connection. All course materials will be posted through Cougar Courses. Applied coursework requires the use of ArcGIS, available through CougarApps.

Course Outline

Week	Lecture Topics	Lab
1	Geographic Features & Attributes	ArcGIS navigation refresher
2	Cartographic principles Visual hierarchy Planning a layout Issues of projections	Modifiable Area Unit Problem (MAUP)
3	Cartographic principles Designing a legend Color schemes	Map design and critique

	Map symbols	
4	Measuring geographic distributions Center, dispersion, orientation, direction	Basic spatial statistics
5	Intro spatial analysis Spatial queries Spatial joins	Queries & joins
6	Intro spatial analysis Overlays Buffering	Model builder Buffers
7	Point Patterns Geometric measures Quadrat analysis	Spatial autocorrelation
8	Point Patterns Kernal density Nearest neighbor	Point pattern analysis
9	Line Data Length Density Direction Orientation	Linear & geographically weighted regression
10	Networks Routing Service area	Network connectivity & optimal routing
11	Networks Cost matrices	Site selection
12	Surface Analysis Spatial interpolation Distance analysis	Kriging
13	Surface Analysis Density analysis Surface analysis	Terrain analysis
14	3-D Analysis Viewsheds Volumetric analysis Line-of-sight	Project work
15	3-D Analysis Draping Animation	Project presentations

Course Requirements and Graded Components

Exams (2)	50% (25% each)
Lab Exercises	40%
Final Project	10%

All-University Writing Requirement

In this class, the All-University Writing Requirement is met through the submission of lab exercises and a final project. Both exams include questions that require analytic writing in response. Together, these requirements will meet or exceed the 2500-word minimum.

Credit hour policy

For each semester hour of credit that assigned to a Geography course, you should expect to spend minimum of **two** hours per week for each unit of credit, outside the classroom preparing for class sessions. ***In this course, this means you should plan for a minimum of six hours per week outside of class time in preparation.***

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