I. CATALOG INFORMATION

A.   Discipline: GEOGRAPHIC INFORMATION SYSTEMS (GIS)

B.   Subject Code and Number: GIS M01

C.   Course Title: Introduction to Mapping and Geographic Information Systems (GIS)

D.   Credit Course units:

  Units: 3

  Lecture Hours per week: 3

  Lab Hours per week : 0

  Variable Units : No

E.   Student Learning Hours:

  Lecture Hours:

  Classroom hours: 52.5 - 52.5

  Laboratory/Activity Hours:

  Laboratory/Activity Hours 0 - 0

  Total Combined Hours in a 17.5 week term: 52.5 - 52.5

F.   Non-Credit Course hours per week

G.   May be taken a total of: [X] 1 [ ] 2 [ ] 3 [ ] 4 time(s) for credit

H.   Is the course co-designated (same as) another course: No [X] Yes [ ]
  If YES, designate course Subject Code & Number:

I.   Course Description:

  Introduces basic cartographic principles including map types, scales, projections, coordinate systems, as well as an introduction to Geographic Information Systems (GIS) technology and software. Provides hands-on experience through the application of GIS technology to solve spatial problems and display geographic data.

J.   Entrance Skills

  *Prerequisite: No [X] Yes [ ] Course(s)

  *Corequisite: No [X] Yes [ ] Course(s)

  Limitation on Enrollment: No [X] Yes [ ]

  Recommended Preparation: No [X] Yes [ ] Course(s)

  Other: No [X] Yes [ ]

K.   Other Catalog Information:

II.   COURSE OBJECTIVES

Upon successful completion of the course, a student will be able to:

		Methods of evaluation will be consistent with, but not limited by, the following types or examples.
1	demonstrate proficiency in using industry-standard geographic information system (GIS) software.	Exams Quizzes Hands-on exercises
2	define and identify various map components (scale, coordinate system, legend, compass).	Exams Quizzes Hands-on exercises
3	classify data into ranges and produce thematic maps using both traditional and modern GIS methods.	Exams Quizzes Hands-on exercises
4	explain the difference between spatial (geographic) data and attribute (tabular) data.	Exams Quizzes Hands-on exercises
5	describe various mapping inaccuracies, why they occur and the factors affecting accuracy in various map projections.	Exams Quizzes Hands-on exercises
6	differentiate between discrete and continuous data and give examples for point, line and polygon features.	Exams Quizzes Hands-on exercises
7	describe the differences between raster and vector systems of data storage.	Exams Quizzes Hands-on exercises
8	define terms such as orientation, arrangement, diffusion, pattern, dispersion, density and spatial arrangement and be able to use them when discussing geographic phenomena.	Exams Quizzes Hands-on exercises
9	identify the industry-standard conventions used to represent features.	Exams Quizzes Hands-on exercises

10	use GIS to perform buffer analyses (finding features inside, nearby, within or intersecting other features).	Exams Quizzes Hands-on exercises
11	perform geocoding (assign coordinates) to a database using GIS software.	Exams Quizzes Hands-on exercises
12	search for, perform quality assessment, and obtain geographic data from various sources.	Exams Quizzes Hands-on exercises
13	demonstrate an ability to merge data tables based on their recognition of common attributes and spatial relationships.	Exams Quizzes Hands-on exercises
14	produce professional, presentation-quality graphics.	Exams Quizzes Hands-on exercises
15	create, preserve and disseminate data (spatial and attribute) by means of basic spatial and statistical analyses.	Exams Quizzes Hands-on exercises

III.   COURSE CONTENT

Estimated %	Topic	Learning Outcomes
Lecture (must total 100%)		
5.00%	Geocoding of data to create spatially informed databases Assignment of coordinates to specific addresses using US Census street and zip code	1, 11, 12, 13, 14, 15
10.00%	Editing spatial and tabular (attribute) data using appropriate tools to analyze and manipulate map features	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15
10.00%	Explore spatial relationships using buffer analysis (i.e., identify features and processes inside, near, within a given distance of, or that intersect, other features)	1, 4, 5, 6, 8, 9, 10, 11, 14, 15
10.00%	Creating spatial data using the appropriate tools to analyze existing map layers and imported data	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
	Professional quality presentation of maps, charts and tables in layouts	1, 2, 3, 4, 5, 6, 7, 8,

10.00%	Exporting maps and other visual results into a variety of software packages	9, 10, 11, 12, 13, 14, 15
10.00%	Student project: mock feasibility study demonstrating a strong knowledge of the forelisted content items	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
20.00%	Fundamentals of geography and cartography: history of cartography, map projections and interpretation, fundamental map components, distortion, GIS technology	1, 2, 3, 4, 5, 7, 8, 9
5.00%	Create thematic/choropleth maps using appropriate classification schemes Classify data and produce thematic maps using traditional and modern GIS techniques	1, 2, 3, 5, 6, 8, 9, 12, 13, 14, 15
5.00%	Utilize professional standards and conventions to display and symbolize map themes and features	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
5.00%	Topology conversions: Raster to Vector and vice versa	1, 7, 13, 15
5.00%	Data acquisition, quality assessment and integration into GIS software platform	1, 4, 5, 6, 11, 12, 13, 14, 15
5.00%	Joining spatial data files using appropriate tools and methodology	1, 4, 5, 6, 7, 11, 12, 13, 14, 15

IV. TYPICAL ASSIGNMENTS
A. Writing assignments

Writing assignments are required. Possible assignments may include, but are not limited to:	
1	write a term paper summarizing a certain project: what was studied, why and how, including GIS generated maps, charts, summary tables, and analyses.
2	write an essay outlining how and why a map is exported to another program, i.e., under what circumstances would this be necessary, how can this be accomplished, and evaluate student results.
3	write an evaluation of a real life GIS application (based on interview of local GIS user or literature case study).

B. Appropriate outside assignments

Appropriate outside assignments are required. Possible assignments may include, but are not limited to:	
1	conduct field observations/interviews with GIS professionals.
2	complete assigned writings based on current GIS literature.
3	complete assigned readings from text, professional journals, and other appropriate

sources.

    C.   Critical thinking assignments

	Critical thinking assignments are required. Possible assignments may include, but are not limited to:
1	write a feasibility study using GIS technologies for purposes of crime analysis, wildlife conservation or institutional research.
2	analyze different classification methods that produce different choropleth maps of the same data (i.e., explain the implications of conveying data in such a way that there is no one way of presenting data visually).
3	produce a variety of maps that demonstrate more than one way to arrive at a possible solution to a problem based on spatial relationships (e.g., a middle school site-selection study in which the parameters of the selection criteria are changed).
4	appraise how GIS can be used and abused to alter boundaries for the purposes of more effective sales regions, school districts or supervisory districts.
5	demonstrate how decision-making can be facilitated using GIS and spatial analyses.
6	communicate effectively a variety of information using different map projections and scales.

V.   METHODS OF INSTRUCTION

Methods of instruction may include, but are not limited to:

[ ] Distance Education – When any portion of class contact hours is replaced by distance education delivery mode (Complete DE Addendum, Section XV)

[X] Lecture/Discussion

[ ] Laboratory/Activity

[X] Other (Specify)
   1. PowerPoint lectures and demonstrations of the appropriate software
   2. Guidance obtaining professional-quality spatial data sets for use in class projects

[X] Optional Field Trips

[ ] Required Field Trips

VI.   METHODS OF EVALUATION
Methods of evaluation may include, but are not limited to:
  [X] Essay Exam   [X] Classroom   [X] Skill Demonstration

⊠	Problem Solving Exam	⊠	Discussion Reports/Papers/ Journals	⊠	Participation
⊠	Objective Exams	⊠	Projects	⊠	Other (specify)

presentation of results to peers in a professional manner (e.g., using an online learning environment to exchange output and results of analysis.

submission of projects to academic competitions.

development of a GIS portfolio.

VII.   REPRESENTATIVE TEXTS AND OTHER COURSE MATERIALS

Chang, Kang-tsung. Introduction to Geographic Information Systems. 8th ed. McGraw-Hill, 2015.

Law, Michael, and Amy Collins. Getting to Know ArcGIS Desktop; Updated for ArcGIS 10.1. 3rd ed. Esri, 2013.

VIII.   STUDENT MATERIALS FEES

⊠ No   ☐ Yes

IX.   PARALLEL COURSES

College	Course Number	Course Title	Units
Ventura College	GEOG/GIS V22	Fundamentals of Mapping & GIS	3
CSU Northridge	GEOG 206 & 206L	Introduction to Geographical Information Science and Lab	2/1
CSU Chico	GEOG 211	Intro to Geographical Information Systems	3
CSU East Bay	GEOG/GEOL 2600	Introduction to GIS	4

X.   MINIMUM QUALIFICATIONS

Courses Requiring a Masters Degree:
Master's degree in geology, geophysics, earth sciences, meteorology, oceanography, or paleontology OR bache lor's degree in geology AND master's degree in geography, physics, or geochemistry OR the equivalent.

XI.   ARTICULATION INFORMATION
    A.   Title V Course Classification:
        1. This course is designed to be taken either:

        ☐ Pass/No Pass only (no letter grade possible); or
        ⊠ Letter grade (P/NP possible at student option)

        2. Degree status:
        Either ⊠ Associate Degree Applicable; or ☐ Non-associate Degree Applicable

    B.   Moorpark College General Education:
        1. Do you recommend this course for inclusion on the Associate Degree General Education list?
        Yes: ☐ No: ⊠ If YES, what section(s)?

☐ A1 - Natural Sciences - Biological Science
☐ A2 - Natural Sciences - Physical Science
☐ B1 - Social and Behavioral Sciences - American History/Institutions
☐ B2 - Social and Behavioral Sciences - Other Social Behavioral Science
☐ C1 - Humanities - Fine or Performing Arts
☐ C2 - Humanities - Other Humanities
☐ D1 - Language and Rationality - English Composition
☐ D2 - Language and Rationality - Communication and Analytical Thinking
☐ E1 - Health/Physical Education
☐ E2 - PE or Dance
☐ F - Ethnic/Gender Studies

C. California State University(CSU) Articulation:

1. Do you recommend this course for transfer credit to CSU?   Yes: ☒ No: ☐

2. If YES do you recommend this course for inclusion on the CSU General Education list?
   Yes: ☐ No: ☒ If YES, which area(s)?

   A1 ☐   A2 ☐   A3 ☐   B1 ☐   B2 ☐   B3 ☐   B4 ☐

   C1 ☐   C2 ☐   D1 ☐   D2 ☐   D3 ☐   D4 ☐   D5 ☐

   D6 ☐   D7 ☐   D8 ☐   D9 ☐   D10 ☐   E ☐

D. University of California (UC) Articulation:

1. Do you recommend this course for transfer to the UC?   Yes: ☒ No: ☐

2. If YES do you recommend this course for the Intersegmental General Education Transfer Curriculum (IGETC)?   Yes: ☐ No: ☒

   IGETC Area 1: English Communication

   ☐ English Composition
   ☐ Critical Thinking-English Composition
   ☐ Oral Communication

   IGETC Area 2: Mathematical Concepts and Quantitative Reasoning

   ☐ Mathematical Concepts

   IGETC Area 3: Arts and Humanities

   ☐ Arts
   ☐ Humanities

   IGETC Area 4: Social and Behavioral Sciences

   ☐

☐ Anthropology and Archaeology

☐ Economics

☐ Ethnic Studies

☐ Gender Studies

☐ Geography

☐ History

☐ Interdisciplinary, Social & Behavioral Sciences

☐ Political Science, Government & Legal Institutions

☐ Psychology

☐ Sociology & Criminology

IGETC Area 5: Physical and Biological Sciences (mark all that apply)

☐ Physical Science Lab or Physical Science Lab only (none-sequence)

☐ Physical Science Lecture only (non-sequence)

☐ Biological Science

☐ Physical Science Courses

☐ Physical Science Lab or Biological Science Lab Only (non-sequence)

☐ Biological Science Courses

☐ Biological Science Lab course

☐ First Science course in a Special sequence

☐ Second Science course in a Special Sequence

☐ Laboratory Activity

☐ Physical Sciences

IGETC Area 6: Language other than English

☐ Languages other than English (UC Requirement Only)

☐ U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

☐ U.S. History, Constitution, and American Ideals (CSU Requirement ONLY)

XII. REVIEW OF LIBRARY RESOURCES

A. What planned assignment(s) will require library resources and use?

The following assignments require library resources:
(1) Library research assignment using the Moorpark College Library's print and online resources on a topic such as how GIS can be used and abused to alter area boundaries for the purpose of influencing elections.
(2) Computer terrain analysis using Google Earth

B. Are the currently held library resources sufficient to support the course assignment?

YES: ☒ NO: ☐

If NO, please list additional library resources needed to support this course.

XIII. PREREQUISITE AND/OR COREQUISITE JUSTIFICATION

GIS M01: Not Applicable

XIV. WORKPLACE PREPARATION

GIS M01: Not Applicable

XV. DISTANCE LEARNING COURSE OUTLINE ADDENDUM

GIS M01: Not Applicable

XVI. GENERAL EDUCATION COURSE OUTLINE ADDENDUM

GIS M01: Not Applicable

XVII. STUDENT MATERIALS FEE ADDENDUM

GIS M01: Not Applicable

XVIII. REPEATABILITY JUSTIFICATION TITLE 5, SECTION 55041

GIS M01: Not Applicable

XIX. CURRICULUM APPROVAL

Course Information:
Discipline: GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Discipline Code and Number: GIS M01

Course Revision Category: Outline Update

Course Proposed By:
Originating Faculty Michael Walegur 03/09/2016

Faculty Peer: _____

Curriculum Rep: _____

Department Chair: _____

Division Dean: Howard Davis 04/01/2016

Approved By:
Curriculum Chair: Jerry Mansfield 05/07/2016

Executive Vice President: _____

Articulation Officer: Letrisha Mai 04/07/2016

Librarian: Mary LaBarge 04/07/2016

Implementation Term and Year: Fall 2016

Approval Dates:
Approved by Moorpark College Curriculum Committee: 05/03/2016

Approved by Board of Trustees (if applicable): _____

Approved by State (if applicable): 05/17/2016