

COURSE IMPLEMENTATION DATE: September 2009
 COURSE REVISED IMPLEMENTATION DATE: _____
 COURSE TO BE REVIEWED: May 2013
(four years after UPAC approval) *(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
 Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

GEOG 454	GEOGRAPHY	4
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UCFV CREDITS
Geospatial Data Analysis and Modeling		
COURSE DESCRIPTIVE TITLE		

CALENDAR DESCRIPTION:

This advanced course focuses on the theory and method of using geospatial data to model, analyze, and solve real world problems. Students will be introduced to methods of enhancing and classifying remotely sensed data, using advanced spatial analysis techniques, and model building and scripting in GIS.

PREREQUISITES: MATH 104 OR MATH 106, COMP 150 or 155, GEOG 353. GEOG 453 recommended.
 COREQUISITES: None
 PRE or COREQUISITES:

SYNONYMOUS COURSE(S):

- (a) Replaces: _____
- (b) Cross-listed with: _____
- (c) Cannot take: _____ for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 75
STRUCTURE OF HOURS:
 Lectures: 25 Hrs
 Seminar: _____ Hrs
 Laboratory: 50 Hrs
 Field experience: _____ Hrs
 Student directed learning: _____ Hrs
 Other (specify): _____ Hrs

TRAINING DAY-BASED INSTRUCTION:
 Length of course: _____
 Hours per day: _____

OTHER:
 Maximum enrolment: 25
 Expected frequency of course offerings: every other year
(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) Yes No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) Yes No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: Yes No

Course designer(s): Dr. Scott Shupe	Date approved: October 2008
Department Head: Dr. Ken Brealey	Date of meeting: October 24, 2008
Supporting area consultation (UPACA1)	Date approved: March 2009
Curriculum Committee chair: _____	Date approved: May 6, 2009
Dean/Associate VP: Dr. Eric Davis	Date of meeting: May 22, 2009
Undergraduate Program Advisory Committee (UPAC) approval	

LEARNING OUTCOMES:

Upon successful completion of this course, students will be able to:

- 1) use geospatial data analysis to solve problems in a geographic information science context
- 2) translate the theory of spatial analysis techniques into applications in academic and professional contexts
- 3) write basic scripts and models to link GIS procedures and processes
- 4) recognize the strengths and limitations of geospatial data analysis in social and natural scientific contexts
- 5) anticipate future directions and possibilities in the theory and application of geospatial data modeling

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

The course will be offered in a lecture/lab format.

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Examination(s) Portfolio assessment Interview(s)

Other (specify):

PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

O'Sullivan, D. and Unwin, D.J. 2002. Geographic Information Analysis, Wiley: Hoboken, N.J., 436, pages
Jensen, J. R., 2005, Introductory Digital Image Processing, 3rd Ed., Upper Saddle River, NJ., Prentice Hall, 526 pages

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

Midterm Exam	20%
Final Exam	30%
Assignments	20%
Modeling Project	30%

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

- 1) Image enhancement of remotely sensed data
- 2) Thematic information extraction using pattern recognition I: unsupervised and supervised classification
- 3) Thematic information extraction using pattern recognition II: fuzzy and object-oriented classification
- 4) Spatial analysis of raster and vector data
- 5) Spatial statistics in GIS and remote sensing
- 6) Models and modeling in GIS
- 7) ArcGIS graphical model builder
- 8) Introduction to python in GIS I
- 9) Introduction to python in GIS II
- 10) Applied modeling using ArcGIS model builder and python