



COURSE IMPLEMENTATION DATE: Fall 2009
 COURSE REVISED IMPLEMENTATION DATE: February 2013
 COURSE TO BE REVIEWED: February 2019
(six years after UEC 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	UFV 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: STAT 104 (formerly MATH 104) or STAT 106 (formerly MATH 106); COMP 150 or 155; GEOG 353. GEOG 453 recommended.

COREQUISITES:
 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:	<u>25</u>	Hrs
Seminar:	_____	Hrs
Laboratory:	<u>50</u>	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): <u>Dr. Scott Shupe</u>	Date approved: <u>April 2, 2012</u>
Department Head: <u>Dr. Michelle Rhodes</u>	Date of meeting: <u>April 13, 2012</u>
Campus-Wide Consultation (CWC)	Date approved: <u>April 20, 2012</u>
Curriculum Committee chair: <u>Norm Taylor</u>	Date approved: <u>May 4, 2012</u>
Dean/Associate VP: <u>Ora Steyn</u>	Date of meeting: <u>May 23, 2012</u>
Undergraduate Education Committee (UEC) approval	

LEARNING OUTCOMES:

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

- Use geospatial data analysis to solve problems in a geographic information science context
- Translate the theory of spatial analysis techniques into applications in academic and professional contexts.
- Write basic scripts and models to link GIS procedures and processes.
- Recognize the strengths and limitations of geospatial data analysis in social and natural scientific contexts.
- 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. 2010. Geographic Information Analysis, 2nd edition, Wiley: Hoboken, N.J., or latest edition.

Jensen, J. R., 2005, Introductory Digital Image Processing, 3rd Ed., Upper Saddle River, NJ., Prentice Hall, or latest edition.

SUPPLIES / MATERIALS:

None.

STUDENT EVALUATION:

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

Lab Assignments (7-8)	40-50%
Midterm Exams (1-2)	15-25%
Final Exam	25-30%
Modeling Project	10-20%

COURSE CONTENT:

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

1. Turning digital imagery into data
2. Thematic information extraction I: unsupervised classification
3. Thematic information extraction II: supervised classification
4. Thematic information extraction III: introduction to advanced image classification methods
5. Spatial analysis of raster and vector data
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