

Request for Graduate Course Change

1. Prepare one paper copy with all signatures and supporting material and forward to the Graduate Council Chair.
2. E-mail one identical PDF copy to the Graduate Council Chair. If attachments included, please merge into a single file.
3. **The Graduate Council cannot process this application until it has received both the PDF copy and the signed hard copy.**

College: Liberal Arts

Dept/Division: Geography

Current Alpha Designator/Number: GEO529

Contact Person: James Leonard

Phone: 6-4626

CURRENT COURSE DATA:

Course Title: GIS Vector Analysis

Alpha Designator/Number:

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Title Abbreviation:

G	I	S		V	e	c	t	o	r		A	n	a	l	y	s	i	s				
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1. Complete this **five** page form in its entirety and route through the departments/committees below for changes to a course involving: course title, alpha designator, course number, course content, credit hours, or catalog description.
2. If this change will affect other departments that require this course, please send a memo to the affected department and include it with this packet, as well as the response received from the affected department.
3. If the changes made to this course will make the course similar in title or content to another department's courses, please send a memo to the affected department and include it with this packet as well as the response received from the affected department.
4. List courses, if any, that will be deleted because of this change (*must submit course deletion form*).
5. If the faculty requirements and/or equipment need to be changed upon approval of this proposal, attach a written estimate of additional needs.

Signatures: if disapproved at any level, do not sign. Return to previous signer with recommendation attached.

Dept. Chair/Division Head _____	Date _____
Registrar _____	Date _____
College Curriculum Chair _____	Date _____
Graduate Council Chair _____	Date _____

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Change in COURSE CREDIT HOURS: YES NO If YES, fill in below:

NOTE: If credit hours increase/decrease, please provide documentation that specifies the adjusted work requirements.

From 3 credit hours

To 4 credit hours

Change in credit hours reflects the lab/lecture structure of the course, similar to other GIScience courses such as GEO426 or BSC410, which are four-credit courses; and addition of material, specifically a semester project (see new material highlighted in attached syllabus).

Change in COURSE CONTENT: YES NO (May attach separate page if needed)

From

To

Rationale

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College: Liberal Arts

Department: Geography

Course Number/Title GEO529 GIS Vector Analysis

1. REQUIRED COURSE: If this course is required by another department(s), identify it/them by name and attach the written notification you sent to them announcing to them the proposed change and any response received. Enter NOT APPLICABLE if not applicable.

n/a

2. COURSE DELETION: List any courses that will be deleted because of this change. A *Course Deletion* form is also required. Enter NOT APPLICABLE if not applicable.

n/a

3. ADDITIONAL RESOURCE REQUIREMENTS: If your department requires additional faculty, equipment, or specialized materials as a result of this change, attach an estimate of the time and cost etc. required to secure these items. (NOTE: approval of this form does not imply approval for additional resources. Enter NOT APPLICABLE if not applicable.)

n/a

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Please insert in the text box below your course change summary information for the Graduate Council agenda. Please enter the information exactly in this way (including headings) based on the appropriate change:

COURSE DESCRIPTION CHANGE

Department:
Course Number and Title:
Rationale:
Course Description (old)
Course Description: (new)
Catalog Description:

COURSE NUMBER CHANGE

Department:
Current Course Number/Title:
New Course Number:
Rationale:
Catalog Description:
Credit hours:

COURSE TITLE CHANGE

Department:
Current Course Number/Title:
New Course Title:
Rationale:
Catalog Description:

COURSE DESCRIPTION CHANGE

Department: Geography

Course Number and Title: GEO529 GIS Vector Analysis

Rationale: Course description better reflects the change in emphasis and material considered.

Course Description (old) GIS vector analysis and spatial statistics, including topics such as map overlay and distance analysis, pattern analysis, spatial joins, network analysis, spatial autocorrelation, geographically weighted regression.

Course Description: (new) Continuation of GEO526 Principles of GIS, including additional principles like data management, cartographic design, and geocoding; and vector analyses like spatial patterns analysis, spatial autocorrelation, and network analysis.

Catalog Description: Continuation of GEO526 Principles of GIS, including additional principles like data management, cartographic design, and geocoding; and vector analyses like spatial patterns analysis, spatial autocorrelation, and network analysis.

Principles of GIS 2: Vector Analysis

GEO429/529: Spring 2017, Section 201, CRN 3411 (GEO429) or CRN 3419 (GEO529)

Instructor: James Leonard, Ph.D.	Time: Mon. 6:30-9:00pm
Phone: (304) 696-4626	Place: HH202
Office HH208: Mon., Wed., Fri. 9:30am-11:00am; Mon. 3:30-5:00pm; other times by appointment	leonard@marshall.edu

University catalog description:

Continuation of GEO426 Principles of GIS, including additional principles like data management, cartographic design, and geocoding; and vector analyses like spatial patterns analysis, spatial autocorrelation, and network analysis. Prerequisite: GEO426 or IST423 or GEO430 or permission. Recommended prerequisite: Basic knowledge of statistics equivalent to MTH225. 4 credit hours

Course learning outcomes:

Course Learning Outcomes	How students will practice each outcome	How student achievement will be assessed
Students will recognize and apply geographic concepts and principles that form the foundation of GIS such as data management, cartographic design, and geocoding	Discussion, readings, tutorials	Written assignments
Students will employ GIS for vector analysis.	Discussion, readings, tutorials	Written assignments
Students will practice vector input and analysis concepts.	Discussion, readings, tutorials	Written assignments
Students will apply GIS principles and vector analysis to construct a GIS research project.	Discussion, readings, tutorials	Semester project

Required materials:

- Price, Meribeth. 2016. *Mastering ArcGIS*, 7th ed. NY: McGraw-Hill. Cost = \$100 or so. Do not use other editions. You might already have a copy from GEO426/526.
- Allen, D.W. 2013. *GIS Tutorial 2: Spatial Analysis Workbook, 10.1 edition*. Redlands, CA: ESRI Press. Cost = \$100 or so.
- Readings provided free to use only in GEO4/529.

Time Inside and Outside of Class:

Class time will consist of one or more of the following: 1) presentations of geostatistics and vector analysis concepts; 2) discussion; and 3) lab time for exercises. **You must attend every class!** This class, though, consists of more than simple class attendance. Expect to spend about six to nine hours each

week (including class time) on course material. You may require extra practice with the ArcGIS software on your own time. The software is available campus-wide in University Computing Facilities Labs, or you can download ArcGIS for Desktop from www.esri.com. The exercise data is available on a network drive (\\munas\geography\) where it is accessible campus-wide, or you can load the data from your textbook DVDs.

Grading:

Grades will be based on twelve exercises assigned during class (20-30 points each) for 300 points; and a semester project (100 points). Grad students will have more extensive exercises and projects. Final grades will be determined by the total number of points you have earned:

- A = 400 - 364 points (100-91%)
- B = 363 - 324 (90-81%)
- C = 323 - 284 (80-71%)
- D = 283 - 260 (70-65%)
- F = 259 and below (less than 65%)

There will be no extra credit and no grades will be scaled or curved. Please be aware that:

- This is a senior-/graduate-level course. You will be expected to perform at a high level. The pace of the course is rapid.
- You must be thorough and complete on all exercises to receive full credit.
- You must master all exercises, textbook and article readings, online course material, lecture material, and ArcGIS skills and concepts to do well.
- Homework must be submitted at the beginning of the class period. No late work is accepted.

Attendance Policy:

You must attend every class. If you will not be present for an excused reason you MUST turn all work in early. Failure to follow these instructions will result in loss of points. I do not accept unexcused absences. I follow University policy for excused absences. You must provide adequate documentation for any excused absence. Because missing class means missing class material, instruction, and concepts, I will deduct one letter grade for each missed class after the second. You will be held to the highest standards in regard to academic attendance, participation, and punctuality.

Academic Honesty and Plagiarism:

University policy states that any act of a dishonorable nature which gives the student engaged in it an unfair advantage over others engaged in the same or similar course of study is prohibited. You must do your own work inside and outside of this class. Cheating/plagiarism in or out of this class is prohibited. You will earn a final grade of F cheating/plagiarism, howsoever minor. University sanctions for academic dishonesty include a permanent record of your dishonesty, suspension from the institution

for one year for the second offense, and dismissal from the institution for the third offense. I am happy to assist you with anything you do not understand or have questions about.

Weekly Schedule:

Assignments are due at the BEGINNING of the next class period after they are assigned, unless otherwise stated in class.

- Jan. 9: What is Vector Analysis? Research using GIS Vector Analysis
 - Assignment #1
 - Allen chapter 2 parts 2-1 and 2-2; (Allen tells you what to turn in for each exercise; when you have the option, you must print maps and documents for submission.)
 - Allen chapter 3 parts 3-1 and 3-2;
 - Print five entry-level jobs in your field that have GIS skills as a primary qualification (links to job/career sites are available at <http://www.marshall.edu/geography/jobs.asp>).
- Jan. 16: Holiday!
- Jan. 23: Vector analysis projects; Semester project instructions
 - ESRI Virtual Campus *Solving Spatial Problems Using ArcGIS*
- Jan. 30: Spatial joins;
 - Assignment #2 - Price chapter 9 exercises and review questions
- Feb. 6: Map patterns and density; buffers, overlay, distance analysis
 - Assignment #3 - Price chapter 10 exercises and review questions
- Feb. 13: Buffers, overlay, distance analysis Part 2
 - Semester project part 1 due next class
 - Assignment #4
 - Allen chapter 4 parts 4-1 and 4-2;
 - Allen chapter 5 parts 5-1 through 5-4.
- Feb. 20: Geocoding
 - Semester project part 1 due
 - Readings: Price online material
 - Assignment #5: Price online material exercises and review questions
- Feb. 27: Location-allocation analysis
 - Assignment #6
 - Allen chapter 5 parts 5-8 and 5-9;
 - Location-allocation analysis exercise tutorial
- Mar. 6: Bi-variate LISA using GeoDa
 - Semester project part 2 due next class
 - Assignment #7 - GeoDa exercises
- Mar. 13: Spatial autocorrelation and GWR; ESRI Virtual Campus course *Regression Analysis Basics*
 - Semester project part 2 due
 - Assignment #8 - Correlation and regression exercises

- Mar. 20: Spring Break
- Mar. 27: Project completion discussion
 - Semester project part 3 due next class
- Apr. 3: Raster Analysis
 - Semester project part 3 due
 - Assignment #9: Price ch. 11 exercises and review questions
- Apr. 10: Editing and Topology
 - Assignment #10: Price chapter 12 exercises and review questions
- Apr. 27: Storing data - Geodatabases;
 - Assignment #11: Price ch. 14 & 15 exercises and review questions
- Apr. 25: Documenting data - Metadata
 - Readings: Price ch. 15
 - Assignment #12: Price ch. 15 exercises and review questions

University policies:

By enrolling in this course, you agree to the University Policies found at www.marshall.edu/academic-affairs. They are many; best read them.