Cover Sheet: Request 11902

GIS4XXX GIS Programming

Info

Process	Course|New|Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Liang Mao liangmao@ufl.edu
Created	10/5/2017 9:23:41 PM
Updated	12/14/2017 4:08:15 PM
Description of request	Introduction to basic programming concepts, and instruction in popular programming languages for geospatial processing, applications, and modeling in ArcGIS environment.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CLAS - Geography 011609000	Liang Mao		10/6/2017
uccconsult.pdf					10/5/2017
College	Recycled	CLAS - College of Liberal Arts and Sciences	Liang Mao	– conditionally approved by the CCC. Please make the following changes: (1) write course description using catalog style ("Introduction to … and instruction in popular…."); (2) since cell phones are used in the UF emergency notification system, you should instruct students to turn them to vibrate rather than off; (3) under course objectives, rather than saying students will be able to learn to learn popular programming languages, say that they will be able to use them; (4) include the C- grade notification (A grade of C- is not a qualifying grade for major, minor, Gen Ed, or College Basic distribution credit. For further information on UF's Grading Policy, see: https://catalog.ufl.edu/ugrad/cu /inf http://www.isis.ufl.edu/minusgra	11/27/2017
No document changes					
Department	Approved	CLAS - Geography 011609000	Liang Mao		11/29/2017
No document changes					
College	Approved	CLAS - College of Liberal Arts and Sciences	Liang Mao		12/6/2017
No document changes					

Step	Status	Group	User	Comment	Updated
University Curriculum Committee	Commented	PV - University Curriculum Committee (UCC)	Liang Mao	Added to January agenda.	12/14/2017
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			12/14/2017
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Course|New for request 11902

Info

Request: GIS4XXX GIS Programming
Description of request: Introduction to basic programming concepts, and instruction in popular programming languages for geospatial processing, applications, and modeling in ArcGIS environment.

Submitter: Liang Mao liangmao@ufl.edu
Created: 11/29/2017 11:09:37 AM
Form version: 2

Responses

Recommended PrefixGIS
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code C
Course TitleGIS Programming
Transcript TitleGIS Programming
Degree Type Baccalaureate

Delivery Method(s)4136On-Campus
Co-Listing No

Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic?No
Repeatable Credit?No

Amount of Credit3

S/U Only?No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description Introduction to basic programming concepts, and instruction in popular programming languages for geospatial processing, applications, and modeling in ArcGIS environment.

Prerequisites GIS3043C or equivalent
Co-requisites None
Rationale and Placement in Curriculum Programming allows the automation and customization of Geographic Information Systems (GIS) for geospatial analysis. There is a lack of courses in UF undergraduate curriculum to teach students basic computer programming skills and the use of programming in geospatial analysis. The Departments of Geomatics and Urban Planning open GIS programming courses only at the graduate level, while this class offers undergraduate students, particularly in Geography, an opportunity to enhance their skill sets in geospatial analysis and their competitiveness in job market.

This course will be an advanced level GIS course in the current undergraduate curriculum. It benefits students who have taken GIS3043C Foundations in GIS, and want to continue acquiring advanced computerized skills. It can also serve for an upper elective course for our undergraduate major, minor and Geospatial Information Analysis Certificate.
Course Objectives Students who successfully complete this course will be able to:

1) Apply basic programming concepts to geospatial data,

2) Use popular programming languages to develop workflows to automate common geoprocessing

tasks and geospatial analyses.

Course Textbook(s) and/or Other Assigned Reading Zandbergen, Paul A. Python scripting for ArcGIS. ESRI press, 2013.
https://www.amazon.com/Python-Scripting-ArcGIS-Paul-Zandbergen/dp/1589482824

You can purchase it through the University Bookstore and Amazon, though it can also be found in electronic and print form in the UF libraries;

Weekly Schedule of Topics Week 1 Class introduction Lab 1a: Python environment

Week 2 Python Introduction Lab 1b: Exploring Python code

Week 3 Data types and variable assignment Lab 2: Data types

Week 4 Looping and conditional statements Lab 3: Looping

Week 5 Getting data in/out of Python Lab 4: Conditional statements/testing

Week 6 Introduction to geoprocessing Lab 5: Geoprocessing in ArcGIS using ArcPy library

Week 7 Spatial data fundamentals Lab 6: Exploring Spatial Data

Week 8 Mid-term course review - no exam… Project: Prospectus writing - define problem and identify data

Week 9 Vector data and analysis Lab 7: Manipulating Spatial Data

Week 10 Raster data and analysis Lab 8: Working with Rasters

Week 11 Tabular data and analysis Lab 9: Attribute queries and analyses

Week 12 Debugging and error handling Lab 10: Error handling using try…except…

Week 13 Maps and graphics Lab 11: Graphic data using matplotlib library

Week 14 Writing functions and classes No lab: Thanksgiving Break

Week 15 Individual project work Individual project work

Week 16 Final Project Presentations Final Project Presentations, Papers Due

Links and Policies1. Attendance/Participation: Attendance is mandatory for all students, and is the easiest way to do well in this class. To encourage uninterrupted participation in class, it is expected that cell phone and pagers be turned to vibrate prior to entering the classroom.

Absences may be excused if they are documentable. For expected absences, students must provide at least two business days advance notice of the absence. Acceptable reasons for absences include but are not limited to personal or family illness or emergency, religious holidays, official university events, etc. Oversleeping, missing the bus, etc., are not excusable excuses. Students may be required to provide written documentation in order to receive an excused absence.

If absence is excused, students are responsible for material missed during any class session (lab or lecture). S/he should obtain notes from a peer for the material covered in class. If the absence is unexcused, assignments not turned in at the assigned time will be considered late and a penalty applied.

2.Policy on make-up work: Students are allowed to make up assignments and exams ONLY as the results of official university events, religious holidays, illness, or other unanticipated circumstances warranting a medical excuse and resulting in the student missing a homework or exam. Documentation from a health care provider is required. Assignments and exams missed for any other reason will receive a grade of zero.

3. UF's honesty policy: UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor of TAs in this class.

4. Accommodations for Students with Disabilities: Students requiring accommodations must first register with the Dean of Students' Office. The Dean of Students' Office will provide documentation to the student, who must then provide this documentation to the faculty member when requesting accommodation. If students experience personal, academic, and social issues, please consider either of the following assistances:

University Counseling Services (P301 Peabody Hall – 392-1575)
http://www.counsel.ufl.edu/base.asp?include=counselingServices.inc

Student Mental Health Services in the Student Health Care Center (Room 245, Infirmary Bldg. – 392-1171) http://www.health.ufl.edu/shcc

5. Instructor Evaluation Policy: Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu.

Grading Scheme Students taking this course are graded based on their lab assignments (10 points per lab), their presented project work, including a project proposal (2 pages), final write-up (5 pages), and in-class presentation (10 minutes plus discussion). Lab assignments must be submitted via E-Learning, due the date and time given online. Any lab may be redone and resubmitted with permission of the instructor. Explicit guidelines will be set for proposal and final project by mid-term. There will be one exam in class.

Point Breakdown:

- Labs: 60%
- Final Project: 30%
- Exam: 10%

Your total score will be divided by the maximum possible 1900 to convert into a percentage. A letter grade will be assigned based on following scale:

A: 91.0-100%, A-: 90.0-90.9%, B+: 87.0-89.9%, B: 80.0-86.9%, B-: 78.0-79.9%, C+: 75.0-77.9%, C: 65.0-74.9%, C-: 60.0-64.9%, D+: 57.0-59.9%, D: 50.0% - 56.9%, D-: 45.0-49.9%, E: 00.0-44.9%

(A grade of C- is not a qualifying grade for major, minor, Gen Ed, or College Basic distribution credit. For further information on UF's Grading Policy, see:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx).
Instructor(s) Moulay Anwar Sounny-Slitine

UF UNIVERSITY of FLORIDA

UCC: External Consultations

External Consultation Results (departments with potential overlap or interest in proposed course, if any)

Department	Name and Title
School of Forest Resources and Conservation	Timothy Martin, PROFESSOR and Director
Phone Number	**E-mail**
	tamartin@ufl.edu

Comments

I do not have a conflict between this course and the remote sensing special topics FOR 6934 that I have taught. The two courses are very distinct. Dr Stephanie [Bohlman]
All 3 course title suggestions you provide are very similar to that of the GIS 6103 course, especially with the term "Programming" and "Spatial"/"Geographical" in it. Dr Henry [Hartwig]
I am OK with either of the four proposed course titles. Dr Henry [Hartwig]
I too don't have a problem. Dr Amr [Abd-Elrahman]

Department	Name and Title
Soil and Water Science	K. Ramesh Reddy, GRAD RES PROF & CHAIR
Phone Number	**E-mail**
(352) 294-3154	krr@ufl.edu

Comments

I do not see a conflict with my course. My course is more basic and introduces spatial analysis and concepts behind GIS rather than programming and work flows. Looks like a good course! Regards, Susan [Curry]
The two courses you propose are programming oriented (Python) and I do not see any conflict with GIS courses offered in our department.
Best regards, Dr Sabine [Grunwald]

Department	Name and Title
Urban and Regional Planning	Kristin Larsen, Associate Professor and Director
Phone Number	**E-mail**
(352) 294-1482	klarsen@ufl.edu

Comments

We teach a python based graduate course here. Given your grad course will be taught in R, I think we should be ok. I don't know what to say about the undergrad course.
Good luck Dr Ilir [Bejleri]