Syllabus
BIO 580 fall ADVANCED ECOLOGY GIS

INSTRUCTOR
Justin K. Williams, Ph.D.
Office hours MW 2-3 Lee Drain 140. Other times available on request
Office Phone: 936-294-1552
Email: bio_jkw@shsu.edu

Class Time M: 5-8 p.m. (subject to change)
Attendance is mandatory


**GRADING**

Test

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<th>Component</th>
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<td>Lecture test</td>
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<td>Data accumulation</td>
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<td>Project 1</td>
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<td>Project 2</td>
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<td>Participation</td>
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The purpose of this class is to introduce students to the applied and theoretical aspects of Global Information Systems (GIS) and Global Positioning Systems (GPS). Applications of these skills include remotely producing vegetation maps, GAP analysis; predicting theoretical spread and habitat of rare and invasive species, predicting potential outcomes global catastrophes (i.e. deforestation, Global Warming). Students will gain a familiarity with the tools of GIS and GPS. Students will learn to produce vegetation maps, analyze accuracy of maps and detail their methodology as well as display their product. The primary project will be assigned by Dr. Williams the secondary project will be of the student’s choice but must be approved by Dr. Williams. Student’s are encouraged to ask other faculty for project ideas that may benefit their research. If a student does not have their own project, then one will be assigned by Dr. Williams. 15 minute presentations of the project results are required at the end of the semester (see attached calendar).
Calendar

August 27  First Day Introduction/ Class Room; ARC View vs. ARC MAP (ARC GLOBE)

September 10th  Shapefiles vs. Rasters; Grids, Pixels, 256 colors

September 17th  Aerial vs. Satellite imaging; DOQ’s, DOQQ’s, DEMS, LANDSAT, IKONIS

September 24th  Finding Biological data; searching known databases and USGS Files; Seamless; TNRIS; TX parks and wildlife GIS labs

October 1st  Creating points, lines, shapes; transferring rasters to shapes and vice versa

October 8th  Coordinate systems; Datum’s and Geo-references; UTM, Decimal Degrees, Lat Long; State Plane

October 18th  Incorporating GPS files; geo-referencing museum specimens.

October 25th  Remotely sensing the hierarchical levels of the National Vegetation Classification Standard (NVCS)

November 5th  Accuracy assessment; Kappa Index; User vs. Producer Accuracy

November 12th  Supervised vs. Unsupervised Classifications; Running clustering analysis of images.

November 19th  Lecture Test; Help from Dr. Williams working on your projects

November 26th  Work on your projects

December 3rd  15 minute presentation to class on projects 1 & 2.