

Syllabus
BIO 5394 Spring 2018 ADVANCED ECOLOGY GIS

INSTRUCTOR

Justin K. Williams, Ph.D.

Office hours MW 11-12; W 1-2; Lee Drain 140. Other times available on request

Office Phone: 936-294-2226

Email: bio_jkw@shsu.edu

Class Time T: 4-7 p.m

Attendance is mandatory

Text: **GIS for Ecology: An Introduction. Publisher:** Prentice Hall. **ISBN-10:** 0582246520. by Richard Wadsworth, Jo Treweek. Book is not mandatory.

GRADING

Test

Lecture test	20%
Data accumulation	10%
Project 1	20%
Project 2	10%
Participation	15%
Pop Quizzes	25%

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. Students 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

January 23	First Day Introduction/ Class Room; ARC View vs. ARC MAP(ARC GLOBE)
January 30	Shapefiles vs. Rasters; Grids, Pixels, 256 colors
February 6	Finding Shapefiles and Images; Lifemapper; TNRIS; Geo-referencing your own images
February 13	Aerial vs. Satellite imaging; DOQ's, DOQQ's, DEMS, LANDSAT, IKONIS
February 20	Finding Biological data; searching known databases and USGS Files; Seamless; TNRIS; TX parks and wildlife GIS labs
February 27	Creating points, lines, shapes; transferring rasters to shapes and vice versa
March 6	Coordinate systems; Datum's and Geo-references; UTM, Decimal Degrees, Lat Long; State Plane
March 20	Incorporating GPS files; geo-referencing museum specimens.
March 27	Remotely sensing the hierarchical levels of the National Vegetation Classification Standard (NVCS)
April 3	Accuracy assessment; Kappa Index; User vs. Producer Accuracy
April 10	Supervised vs. Unsupervised Classifications; Running clustering analysis of images.
April 17	Lecture Test; Help from Dr. Williams working on your projects
April 24	Work on your projects
May 1	15 minute presentation to class on projects 1 & 2.