SPRING 2015

IST 322: sec.201–Assessment 1: Terrestrial Systems

4 hrs CRN 3730

1 pm – 1:50 pm MWF, S 200; LAB F 10-11:50, S 200

**Instructor:**

Terry Shank

Office: Morrow 113, 304-696-3517, MWF 9-9:50, W 10-12, F 3-6

**Required Texts:**

*Foundations of Ecology- Real and Brown editors.*

*1491:* by Charles Mann;

**Course Description:**

Course will first integrate biological and geological information into digital mapping systems. This integration will involve an analysis of the impact of extraction industries such as mining and timbering on forest communities of Appalachia. This analysis will involve an extensive introduction/review of GPS hardware applications, the movement of GPS data into GIS systems, and the inclusion of numeric, tabular data in these GIS systems. We will then look at a range of biological systems; e.g. ecological, genetic, and physiological systems and determine how they can be functionally and structurally interconnected and expressed in geospatial, digital context.

**Computer Requirements:**

All required materials for computer application will be found on the website, gis.marshall.edu or on the COS or ISAT server system. Class announcements and assignments will be made during class. Most assignments will include “hard copy” handouts, it is therefore absolutely required that you attend all class sessions and do so on time. You will also need to have access to GPS TrackMaker, Garmin GPS (Minnesota DNR), and Quantum GIS. This access will be provided by open lab hours with access to computers in Morrow 119. You will be loaned a Garmin Venture GPS unit for specific applications during lab exercises. You can check out a GPS unit at other times, along with an USB cable for connection to IST computers. The GPS unit must be returned or replaced (if lost) for your final grade to be recorded for the course.

**Course Student Learning Outcomes and Assessment Measures:**

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| --- | --- | --- |
| Course Student Learning Outcome | How Practiced in this Class | How Assessed in this Course |
| Develop understanding of digital, spatial imagery and its relationship to geographic grid systems | Class lecture (CL), Hands on examples and discussion (HOED) | Labs, Homework, Exams, Project |
| Competency to use GPS technology | CL, HOED | Labs, Homework, Exams, Project |
| Integration of data from GPS and database sources into GPS software for manipulation and transition of data types | CL, HOED | Labs, Homework, Exams, Project |
| Inclusion of data and imagery into GIS system | CL, HOED | Labs, Homework, Exams, Project |
| Use the most current methods to analyze the distribution of plant communities and relate their distribution to their adaptations and the environments in which they occur | CL, HOED | Labs, Homework, Exams, Project |
| Use the most current methods to analyze diversity of animal communities and the niche parameters that control their interactions and distributions | CL, HOED | Labs, Homework, Exams, Project |
| Examine how local initiatives can more effectively use energy and land resources to develop true green and sustainable communities | CL, HOED | Labs, Homework, Exams, Project |
| Connect effective communication and illustration to public awareness of land use and its connection to entrepreneurship | CL, HOED | Labs, Homework, Exams, Project, presentations |

**Class Attendance:** In this course the instructor will require active participation of each student during each class meeting. Class participation points and homework will only be accepted late, when accompanied with appropriate documentation. By missing class you will not be able to participate in class discussions and the class will not benefit from your ideas and comments. If you are absent, you must contact the professor as soon as possible.

**Students with Disabilities:** Marshall University is committed to equal opportunity in education for all students, including those with physical, learning and psychological disabilities.  University policy states that it is the responsibility of students with disabilities to contact the Office of Disabled Student Services (DSS) in Prichard Hall 117, phone 304 696-2271 to provide documentation of their disability.  Following this, the DSS Coordinator will send a letter to each of the student’s instructors outlining the academic accommodation he/she will need to ensure equality in classroom experiences, outside assignment, testing and grading.  The instructor and student will meet to discuss how the accommodation(s) requested will be provided.  For more information, please visit <http://www.marshall.edu/disabled> or contact Disabled Student Services Office at Prichard Hall 11, phone 304-696-2271.”

The reason for this request is so that students with disabilities understand both their rights and responsibilities regarding requesting accommodations.

**Policy on Academic Dishonesty:** I take cheating very seriously. I will follow the student handbook on definitions and actions precisely.

**Other Policies:**

This URL can be used to access the University wide policies concerning a host of student concerns/issues.

<http://www.marshall.edu/academic-affairs/?page_id=802>

By enrolling in this course, you agree to the University Policies listed.

**Requirements:**

Assignments Possible Points

Class Participation 200 pts

Group Presentation/Project 200 pts

Journal presentations 100 pts

Quizzes 100 pts

Informational Inventory 1 100 pts

Informational Inventory 2 (final) 100 pts

Total: 800 pts

**Assignment Details:**

1. A series of activities will be completed by students both individually and within small groups. The results will be submitted via email and/or Blackboard.
2. A small group of students will present the results of a group project using power point. The groups and the projects will be chosen by the students but verified by the professor.
3. Ten 10 point quizzes will be given throughout the course. The quizzes will cover material discussed during the last class and material read from the current chapter readings.
4. Small student groups will present a summary of an article to the rest of the class using power point.
5. Two 100 point exams will be given at midterm and at the end of the course. I will consider options for these activities, including the generation of a scientific publication from the semester’s activities.

**No makeups will be given without a University excused absence or Instructor discretion.**

**Grading Scale:**

90% - 100% = A

80% - 89% = B

etc…

**Office Hours:** MWF 9-950 am, W 10-12, F 2-6   
 TR: not on campus

**Schedule**

Topics covered during course dates approximate. Wednesdays will be journal presentation days and discussion of assigned text.

Jan 12, 14 &16 Introduction, lab basics

Jan 21 & 23 Organism Identification, lab ‘keys’

Jan 26, 28 & 30 System Requirements for Biome/Climate Evaluation, establish microcosms of wetland and desert environments

Feb 2, 4 & 6 Evaluation and Instrumentation Techniques, lab

Feb 9, 11 & 13 Trophic Dynamics, lab evaluation of microcosm progress

Feb 16, 18 & 20 Application of Scale to Environmental Investigation, El Nino~

Feb 23, 25 & 27 Availability of Resources in Environmental Studies, trip to Army Corps of Engineers (if possible)

March 2, 4 & 6 **Midterm during lab time**

March 9, 11 & 13 Environmental Impact of Land-use Activities, lab toxicology

March 16, 18 & 20 **SPRING BREAK**

March 23, 25 & 27 Field Investigation, Application of Measurement Techniques

Mar 30, April 1 & 3 Field Investigation, Application of Measurement Techniques

April 6, 8 & 10 Field Investigation, Application of Measurement Techniques

April 13, 15 & 17 Field Investigation, Application of Measurement Techniques

April 20, 22 & 24 Field Investigation, Application of Measurement Techniques

April 27, 29 May 1 “dead week”, Field Investigation, Application of Measurement Techniques

**Final Exam: Friday, May 8 at 12:45-2:45 (all work must be submitted by this time to allow for grading of assignments)**