NREM 299V GIS Application
Equivalent to
NREM 250 GIS Application in Environmental Science and Natural Resource Management

02 Independent Study

INSTRUCTOR: Toshi Ikagawa, Ph.D.
OFFICE: Na'auao 127
OFFICE HOURS: MTWR: 11:00 a.m. – 1:00 p.m.
TELEPHONE: 236-9216; ikagawa@hawaii.edu
EFFECTIVE DATE: Spring 2015

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

CATALOG DESCRIPTION

An overview of geographic information system (GIS) applications in environmental science and natural resource management by examining case histories and completion of a GIS project. Students are also introduced to the basics of integrating the global position system (GPS) and remote sensing (RS) into a GIS to solve problems in environmental science and natural resource management. (4 hours lect/lab)

Activities Required at Scheduled Times Other Than Class Times

None

STUDENT LEARNING OUTCOMES

Upon completion of this course the student should understand and appreciate:

1. the diversity of ways in which GIS, GPS and RS can be used to understand and solve environmental science and natural resource management problems

2. the methodological and practical aspects of developing a GIS application in environmental science and/or natural resource management; and

3. the ways in which GIS may be used to convey environmental information.

Requirements Course Satisfies

At WCC: Meets AA degree Natural Science laboratory course requirement (DY).
Full fill elective requirement of Bio-Resources and Technology Academic Subject Certificate in Bio-Resource Development and Management (Elective Set I: Technology, Utilization, and Management). Also partially full fill the requirements of Certificate of Competence in GIS/GPS

At UHM: Meets Natural Science laboratory course requirement (DY).

PREREQUISITES
GIS 150, equivalent coursework, working knowledge of GIS software, or consent of the instructor

RECOMMENDED COURSES
BIOL 124, GEOG 101, NREM 210 or similar environmental science coursework

RECOMMENDED BASIC SKILLS LEVEL
Ability to read and write at a college level; also see “Required previous ArcGIS experience” and Textbook p. xix

LEARNING RESOURCES


Recommended Textbook: *Getting to Know ArcGIS*, 2nd Ed. (Also see Errata online)

SYSTEM REQUIREMENTS
(1) Windows XP, 2000 or Vista OS, (2) RAM 1 GB minimum and (3) DVD drive (see p. 181 of the textbook for more details)

COURSE CONTENTS

WEEK 1: Introduction:
Orientation meeting
NREM 250: Preparatory exercise (See Textbook p. xix)

WEEK 2: Module 1, Project 1:
Group discussion: Reactions/questions on Module 1

WEEK 3: Module 1, Project 2:
Group discussion: How to apply Module 1 to NREM

WEEK 4: Module 2, Project 1:
Group discussion: Reactions/questions on Module 2
**WEEK 5:** Module 2, Project 2:  
Group discussion: How to apply Module 2 to NREM

**WEEK 6:** Module 3, Project 1:  
Group discussion: Reactions/questions on Module 3

**WEEK 7:** Module 3, Project 2:  
Group discussion: How to apply Module 3 to NREM

**WEEK 8:** Module 4, Project 1:  
Group discussion: Reactions/questions on Module 4

**WEEK 9:** Module 4, Project 2:  
Group discussion: How to apply Module 4 to NREM

**WEEK 10:** Module 5, Project 1:  
Group discussion: Reactions/questions on Module 5

**WEEK 11:** Module 5, Project 2:  
Group discussion: How to apply Module 5 to NREM

**WEEK 12:** GIS Project: Define the problem (see Textbook pp. xxiii-xxv)  
Meeting: Identify your GIS project  
Group discussion:

**WEEK 13:** GIS Project: Prepare for data collection  
Group discussion:

**WEEK 14:** GIS Project: Data Collection  
Group discussion:

**WEEK 15:** GIS Project: Data Analysis  
Group discussion:

**WEEK 16:** GIS Project: Presentation  
Poster session  
Oral presentation

**COURSE TASKS (Will be modified to fit independent study)**

Students are expected to attend all lectures and lab sessions, participate in all activities, and complete all course assignments on time (Note: in case the class is offered online, all online activities; same hereafter).

Students are expected to be prepared in advance when they arrive to class. Being prepared includes the following: having already read text materials (e.g., textbook readings and handouts) assigned for that day's activities; and bringing required work materials (e.g., textbook, handouts, writing supplies, etc.).
Any changes in the course schedule, such as examination dates, deadlines, etc., will be announced ahead of time in class. It is the student's responsibility to be informed of these changes.

It is the student's responsibility to be informed about deadlines critical to making registration changes (e.g., last day of erase period and last day for making an official withdrawal).

Science courses at W.C.C. generally require two to three hours of independent private study time for each hour in class (depends upon the student's science background). It is the student's responsibility to allocate the appropriate time needed for study in an environment conducive to quality study. The student must budget time efficiently and be realistic about all personal and professional commitments that consume time.

ASSESSMENT TASKS AND GRADING (Will be modified to fit independent study)

ATTENDANCE AND PARTICIPATION IN CLASS DISCUSSIONS. The student will attend and actively participate in all class discussions and lab activities (50 points). The instructor will evaluate the student in terms of his or her contribution to the discussions and involvement in the activities. Students may not miss class sessions except for documented serious illness or personal or family emergency. The student will receive a 10 point penalty for each unexcused absence. Students missing more than five sessions for any reason will not receive credit for the course.

NOTE: In case this course is offered as an online course, the above means the student will participate in weekly group discussion on Laulima.

LAB EXERCISES. The student will complete ten laboratory exercises (10 points each; 100 points total). Upload completed exercises to Laulima using Assignments tool.

GROUP/INDIVIDUAL GIS PROJECT. The class may be divided into groups of 3-4 students. Each group/individual will identify and develop a GIS project that addresses an environmental science or natural resource management issue or research problem. The approved project must employ the following components integrated with existing GIS datasets:

(1) the field collection of GPS data; and
(2) remotely sensed digital imagery (e.g., aerial or satellite imagery of the earth).

The completed GIS (50 points) will be provided on a CD-ROM consisting of the project and data files (including metadata). For what is expected, refer to Textbook pp. xxiii-xxv.

Accompanying the GIS (in digital format on the CD-ROM and as a “hard" paper copy) will be a written report (20 points) that describes the environmental problem studied, how the GIS was assembled, and the interpretation and conclusions that may be drawn from the GIS data.

The group/individual will also develop a poster-sized layout that explains the GIS and conclusions drawn in a way suitable for presentation at a community meeting (15 points) and will demonstrate the GIS in an oral presentation to the class (15 points).
NOTE: In case this course is offered online, an oral presentation may be excused for those students who have an acceptable reason such as not residing on O‘ahu.

**METHOD OF GRADING**

The assignment of points will be according to the following protocol:

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance and Participation</td>
<td>50</td>
<td>20%</td>
</tr>
<tr>
<td>Lab Exercises</td>
<td>100</td>
<td>40%</td>
</tr>
<tr>
<td>Group GIS Project</td>
<td>50</td>
<td>20%</td>
</tr>
<tr>
<td>Group GIS Written Report</td>
<td>20</td>
<td>8%</td>
</tr>
<tr>
<td>Group GIS Poster</td>
<td>15</td>
<td>6%</td>
</tr>
<tr>
<td>Group GIS Oral Presentation</td>
<td>15</td>
<td>6%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>250</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
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Letter grades will be assigned as follows:

- A: 90.0-100.0%
- B: 80.0-89.9%
- C: 70.0-79.9%
- D: 60.0-69.9%
- F: 0-59.9%

For Cr/NC options, Incomplete (“I” grade), and “W” grade, see the WCC College Catalog.

There is no “N” grade in this class.

Waiver of minimum level of achievement and course requirements may be given only in unique situations at the instructor’s discretion.

**Academic dishonesty: (SERIOUS WARNING!!)**

Academic dishonesty such as cheating and plagiarism that may occur in this class will be severely punished. It most likely will result, at least, in immediate dismissal from the class with “F” grade for the course. In other words, “DON’T DO IT” even if you have noble reasons to do so. It is NOT worth a try it in this class.

**Disabilities Accommodation Statement**

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale ‘Akoakoa 213 for more information.

**Additional Information**

**Legal assumptions:**

It is hereby assumed that you will strictly follow all and any reasonable procedures/ethics, etc. that are enforced in this academic institution.