University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course

1. Type of Action
   - A. Addition
   - B. Deletion
   - C. Modification: in credits, in title, in number or alpha, in prerequisites or co-requisites, Other (click to specify)

2. New Alpha, Number and Title
   - NREM 250 GIS Application in Environmental Science and Natural Resource Management

3. Credits
   - 2 credits

4. Old Alpha, Number and Title

5. Credits

6. New 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)

7. Prerequisites
   - GIS 150, equivalent coursework, working knowledge of GIS, or consent of the instructor
   - BIOL 124, GEOG 101, or similar environmental science coursework

8. Student Contact Hours Per Week
   - Lecture: 04
   - Lecture/Lab: 04
   - Lab: 04

9. Proposed Date of First Offering
   - Semester: Spring
   - Year: 2006

10. This course is proposed for the Liberal Arts Program. Can fulfill * If Other, specify General Education Core as a Natural Science Laboratory Course; Bio-Resources & Technology Academic Subject Certificate in Bio-Resources Development and Management (Elective Set 1: Technology, Utilization, and Management).

11. This course Makes No Difference in the number of credits required for the program/core.

12. Equivalent or similar courses offered in the UH System:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Alpha, Number, Title</th>
<th>Campus</th>
<th>Alpha, Number, Title</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

13. This course is (check one and click in appropriate textbox and provide details):
   - Already articulated with
     Provide details of existing or desired articulation (date, college(s), purposes, pre-major, etc.) in this space:
   - Appropriate for Articulation with Core requirements on different campuses as a natural sciences lab class.
     Provide details of existing or desired articulation (date, colleges(s), purposes, pre-major or major, etc.) in this space:
   - Not yet appropriate for Articulation.

14. Reason for Initiating, Modifying or Deleting Courses or Other Pertinent Comment:
   - This course was proposed in the USDA grant proposal as part of the curriculum for the Academic subject certificate in Bio-Resources and Technology.

Requested by: Joseph E. Cirotti 1/20/05
Approved by: [Signatures] 2/22/05 3/17/05

CCCM #6100 (Amended for WCC use October 2002)
Levels of Review of Course Proposal at Windward Community College

Course Alpha, Number, and Title: NREM 250 GIS Application in Environmental Science and Natural Resource Management

<table>
<thead>
<tr>
<th>Signatures</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/20/05</td>
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<td>1/20/05</td>
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</tr>
</tbody>
</table>

1. Department/Area (more than one departmental instructor's signature required)

   - [Signature]
   - [Date]
   - [Signature]
   - [Date]

2. Department

   - [Signature]
   - Department Chairperson

   Was this course discussed in a department meeting? □ Yes □ No

3. Division

   - [Signature]
   - [Date]

4. Curriculum Committee Review

   - Approved □ 7-0
   - Disapproved □

   Reason:

   - [Signature]
   - Curriculum Committee Chairperson
   - [Date]

CCCMM #6100 (Amended for WCC use October 2002)
WCC Form for Transfer Courses
(To be completed for articulation with any 4-year UH campus)
(This sheet was originally blue.)

Course Alpha and Number NREM 250

Submitted by David Krupp

Date January 20, 2005

1. List the counterpart to this course on any 4-year UH campus. Describe the relationship between the course and any related baccalaureate program area.

NREM 250 has the potential for acceptance as satisfying requirements in several programs on 4-year UH campuses: at UHM NREM 250 might satisfy requirements in the Natural Resources and Environmental Management (NREM) and Environmental Studies program; at UHH NREM 250 might satisfy requirements for programs in the College of Agriculture, Forestry, and Natural Resource Management and the Geography and Environmental Studies Program. Efforts will be made to effect these articulations.

2. Is this course taught or accepted by major accredited colleges or universities? Give one or two examples.

The application of GIS to environmental science and/or resource management is often a component discussed in GIS applications classes. But I am unaware of any class that does what NREM 250 does.

3. Please attach a complete course outline if you have not done so already. Your course outline should address all the items listed in the Guidelines for Course Outlines.

CCCM #6100 (Amended for WCC use September 2002)
Original dated WCC 9/91
WCC Form for Course Modifications

Course NREM 250 GIS Application in Environmental Science and Natural Resource Management
Submitted by David Krupp
Date January 20, 2005

1. What change is proposed in the course? Provide specific information comparing both the “new” and “old” course.

2. What is the rationale for the change?

3. Is the change substantive enough to require a change in course identification? If so, explain thoroughly.

4. Is the course articulated with any 4-year program? 

   If yes, give details of the agreement(s) and explain any impact the proposed modifications may have on articulation.

5. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial considerations that would be required to implement this course modification. What has been done to provide for these additional costs? Who will teach the course? Is additional preparation needed?

6. Will this course modification result in any alterations in the number of hours required to attain a certificate or degree? 

   If yes, provide details and justification for these alterations.

7. If the course is renumbered to 100 or above, does it meet the criteria for transfer level courses? (Go to next page for transfer course criteria.)
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course
Articulation with 4-year UH Campus Form

COURSE ARTICULATION FORM (GENERAL EDUCATION CORE)

ORIGINATING CAMPUS: Windward Community College     DATE SUBMITTED: January 20, 2005

COURSE ALPHA & NUMBER: NREM 250     SEMESTER CREDITS: 2

COURSE TITLE: GIS Application in Environmental Science and Natural Resource Management

DATE OF OUTLINE: January 20, 2005     Year 2006

(** Representative outline, no multiple syllabi, please.)

1. Articulation committee to review this course:

   Standing Committees
     Written Communication     [ ]
     Mathematical & Logical Thinking     [ ]
     World Civilizations     [ ]
     Languages     [ ]
     Arts & Humanities     [ ]
     Natural Science     [X]
     Social Science     [ ]

2. The information in this item is required by the reviewing committee so that it has a starting point for reviewing the course. It is the responsibility of the submitting campus to do the necessary research to provide this information.

In the opinion of the originating campus, this course is equivalent to the following and/or meets the criteria for the indicated core categories. Every core category space, except your own campus, must be filled in (can include ‘none’). An equivalent course, if known, may be helpful to committee members but is not required.

<table>
<thead>
<tr>
<th>Receiving Campus</th>
<th>Equivalent Course (Alpha and Number)</th>
<th>Core Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH Hilo</td>
<td>none</td>
<td>Nat. Sci. Laboratory</td>
</tr>
<tr>
<td>UH Manoa</td>
<td>none</td>
<td>DY</td>
</tr>
<tr>
<td>UH West Oahu</td>
<td>none</td>
<td>Natural Sciences</td>
</tr>
<tr>
<td>Hawaii CC</td>
<td>none</td>
<td>Nat. Sci. Laboratory</td>
</tr>
<tr>
<td>Honolulu CC</td>
<td>none</td>
<td>Nat. Sci. (NS) Laboratory</td>
</tr>
<tr>
<td>Kapiolani CC</td>
<td>none</td>
<td>Nat. Sci. (NS) Laboratory</td>
</tr>
<tr>
<td>Kauai CC</td>
<td>none</td>
<td>Nat. Sci. Laboratory</td>
</tr>
<tr>
<td>Leeward CC</td>
<td>none</td>
<td>Nat. Sci. Laboratory</td>
</tr>
<tr>
<td>Maui CC</td>
<td>none</td>
<td>Nat. Sci. Laboratory</td>
</tr>
<tr>
<td>Windward CC</td>
<td>none</td>
<td></td>
</tr>
</tbody>
</table>

3. If submitted electronically, I understand that this outline will be posted to a publicly accessible web site to enable open access for reviewing committees and campuses. The outline will be taken off the site upon completion of the review.

Typed Name or Signature

Note: If possible submit coversheet and course outline electronically as e-mail attachments (preferably in ‘pdf’ format). If submitting in printed form, 20 copies of coversheet and course outline are required for distribution for appropriate review.

Note: UCA Clearinghouse
   John Muth, Office of the Chancellor for Community Colleges, is acting as staff to the University Council on Articulation and is responsible for tracking all courses submitted for articulation.
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course
Articulation with 4-year UH Campus Form

ARTICULATED COURSE
CHANGE IN ALPHA/NUMBER/TITLE

Old Course

Course Alpha & Number:
Title:

Revised Course

Course Alpha & Number:
Title:

Semester and Year when the revised course was/will be first offered:

Reason for the change in Alpha/Number/and/or Title:

Note: A current outline of the course must be submitted with this form. Undated outlines are not acceptable.

I certify that this course has had its alpha, number, and/or title changed, but that it is substantially the same course as the course that was reviewed and approved for articulation.

Campus: Windward Community College
Certifying Authority (Typed Name or Signature and Title)
Date:

SUBMIT TO: UCA Clearinghouse, Attn: John Muth
Chancellor’s Office for CC, 2327 Dole Street

Revised 1/19/01
WCC Form for New Course Proposals
(This sheet was originally pink.)

1. How is this course related to the education needs and goals of the College/Department/Community as reflected in the EDP/ADP?

   Supports ADP Strategic Direction 3.0 (Promote Workforce and Economic Development) B.: "Explore the integration of workforce and economic development within the strong liberal arts offerings, including such areas as ... environmental studies ... ."

   Supports achievement of curriculum development goals outlined in the Bio-Resources and Technology Academic Subject Certificate program, the Marine Option Program, and the Pacific Center for Environmental Studies (as provided by grants from the USDA and The Castle Foundation).

2. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial support that would be required to implement this course. (Include an estimate of the actual cost of supplies and equipment.) What has been done to provide for these additional costs for the proposed date of offering? Who will teach the course?

   Course may be offered in alternate semesters with the GIS 150 class, although the ideal situation would be to offer sections of GIS 150 every semester to build up a large enough clientele to operate the class at least once per year economically. The class would the Noeau computer lab and the Hoa'aina RS/GIS Lab the Pacific Center for Environmental Studies Castle Foundation Grant will cover the costs of equipment and software. Dave Krupp would teach this class.

3. Is a similar course taught elsewhere in the UH system? Yes If yes, provide details of how this course differs from existing similar courses.

   The UHM College of Tropical Agriculture and Human Resources offered a special topics class, NREM 491, entitled GIS and Remote Sensing for Resource Managers. Special topics classes like this are experimental and temporary (though they may be converted into regular classes at a later date). NREM 250 targets lesser-trained students, extending and providing practical applications to what our students learn in GIS 150.

4. Is this course experimental and/or unique to Windward Community College? Yes If yes, provide rationale and details of its impact on the College Curriculum

   This course will enhance course offerings for the Marine Option Program and the Academic Subject Certificate in Bio-Resources and Technology.

5. Is a similar course taught in the upper division level by a 4-year UH college? Yes If yes, explain why this course is appropriate at the lower division or how it differs from its upper division counterpart.

   See #3 above.

6. Please attach a complete course outline. Your course outline should address all the items listed in the Guidelines for Course Outlines.

7. If this course is numbered 100 or above or appropriate for transfer to a 4-year college, complete and attach WCC Form for Transfer Courses (blue). See criteria for transfer courses.
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course
Articulation with 4-year UH Campus Form

COMMITTEE LEVEL:

1. When the committee has completed its review of a course, the “ARTICULATION RECOMMENDATION FORM” (revised 1/18/2001) should be filled in and attached to the outline. The committee chair should also sign the form.

2. If the committee choice is "accept," indicate receiving campus core area. If the committee choice is "not recommended," a reason must be provided. Outlines with missing or incomplete recommendation forms will be returned to the committee.

   If a committee requires updated or more complete outlines, such requests should be made through the UCA Clearinghouse so that the new outline material can be tracked and placed in the file. If a committee requires more general supporting information, this should be requested through the course’s supporting campus representative on the committee.

3. All committee recommendations should be sent to the UCA Clearinghouse for recordation and dissemination to the campuses. DO NOT SEND THE RECOMMENDATIONS DIRECTLY TO ANY CAMPUS.

RECEIVING CAMPUS:

1. Courses will be sent to each campus for consideration after they come out of committee. Each campus has its own internal process for the approval of courses for its general education core.

2. In all cases where a campus accepts a course into its general education core, it must also indicate which area or part of its core the course fits.

3. In all cases where a campus does not accept a course for articulation, it must supply a reason (even it is "we agree with the committee").

4. When campus actions are completed, these actions should be conveyed back to the UCA Clearinghouse for recordation and publication.

5. The Community College Policy on Acceptance of UCA Reviewed Courses is as follows:

   (a) All Community Colleges agree to accept positive UCA committee recommendations for core, including core categories assigned by the committee.

   (b) All Community Colleges agree to accept the UCA committee judgment of not-Recommended (nR) without further review.

   (c) This policy is retroactive to the time the current articulation effort started.

   (d) The Community Colleges reserve the right to review and modify core category assignments as necessary to assure appropriate categorization and to realign such assignments if changes are made to the campus core structure. Such modifications shall not interfere with the timely publication of the student transfer handbook.

Note: UCA Clearinghouse
John Muth, Office of the Chancellor for Community Colleges, is acting as staff to the University Council on Articulation and is responsible for tracking all courses submitted for articulation.
WINDWARD COMMUNITY COLLEGE
OUTLINE OF COURSE OBJECTIVES

COURSE NAME: GIS Application in Environmental Science and Natural Resource Management

COURSE ALPHA: NREM 250

CREDIT HOURS: 02

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)

REQUIREMENTS COURSE SATISFIES:

- Requested: Natural Science General Education Core for the Associates Degree in Liberal Arts as a Laboratory Class.

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 SKILL LEVELS: College-level reading/writing skills

ACTIVITIES REQUIRED AT SCHEDULED TIMES OTHER THAN CLASS TIME: none

INSTRUCTOR:
OFFICE:
TELEPHONE:
FAX:
E-MAIL:
INSTRUCTOR'S WEBPAGE:
AQUA 201 WEBPAGE:

EFFECTIVE DATE: Spring 2006
COURSE GOALS

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

- the diversity of ways in which GIS, GPS and RS can be used to understand and solve environmental science and natural resource management problems;
- the methodological and practical aspects of developing a GIS application in environmental science and/or natural resource management; and
- the ways in which GIS may be used to convey environmental information.

COURSE OBJECTIVES

Upon completion of this course a student will have achieved the course goals by demonstrating achievement in the following areas:

- ability to describe and analytically discuss specific case histories in the application of GIS, GPS and RS in environmental science and natural resource management (including but limited to the following topics: natural resource exploration and exploitation, agriculture, deforestation, wildlife conservation, habitat restoration and protection, watersheds and water quality, pollution impacts and source identification, natural disaster planning and recovery, and monitoring ecosystem change);
- the use, application and integration of GPS and remotely sensed imagery in GIS development to understand and solve environmental science and natural resource management problems;
- development of a GIS (with appropriate documentation and metadata) that deals with a problem in environmental science and/or natural resource management; and
- being able to explain (in a written report, an oral presentation, and a layout poster) this GIS, it's database structure, how it was developed, and the kinds of interpretations that may be made from it.

MODE OF INSTRUCTION

The previously described objectives may be achieved through the aid of the following learning activities:

- assigned readings;
- class lecture and demonstrations;
- class discussions;
- webpage and Internet resources;
- in-class GIS exercises;
- hands-on GPS training;
- the development and presentation of a group GIS project.
EVALUATION OF OBJECTIVE ACHIEVEMENT

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.

LAB EXERCISES. The student will complete ten laboratory exercises (10 points each; 100 points total).

GROUP GIS PROJECT. The class will be divided into groups of 3-4 students. Each group 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). Accompanying the GIS (in digital format on the CD-ROM and as a “hard” paper copy) will be a written report (25 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 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). Finally, using an anonymous survey, the student members of each group will evaluate each other’s contribution to the project. The instructor will use this student-contributed information, along with personal observations and private interviews, to evaluate each student’s level of participation in the project (25 points).

METHOD OF GRADING

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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</thead>
<tbody>
<tr>
<td>Attendance and Participation</td>
<td>50</td>
</tr>
<tr>
<td>Lab Exercises</td>
<td>100</td>
</tr>
<tr>
<td>Group GIS Project</td>
<td>50</td>
</tr>
<tr>
<td>Group GIS Written Report</td>
<td>25</td>
</tr>
<tr>
<td>Group GIS Poster</td>
<td>15</td>
</tr>
<tr>
<td>Group GIS Oral Presentation</td>
<td>15</td>
</tr>
<tr>
<td>Individual Evaluation (for Group GIS Project)</td>
<td>25</td>
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<tr>
<td>TOTAL</td>
<td>280</td>
</tr>
</tbody>
</table>
Letter grades will be assigned as follows:

A ------ 90% or above in total points.
B ------ 80-89.9% of total points.
C ------ 65-79.9% of total points.
D ------ 55-64.9% of total points.
F ------ Below 55% of total points or informal or incomplete official withdrawal from course.
I ------ Incomplete; given at the instructor's option when student is unable to complete a small part of the course because of circumstances beyond his or her control. It is the student's responsibility to make up incomplete work. Failure to satisfactorily make up incomplete work within the appropriate time period will result in a grade change for "I" to the contingency grade identified by the instructor (see catalog).
CR ---- 65% or above in total points; the student must indicate the intent to take the course as CR/NC in writing by the end of the 10th week of classes (see catalog).
NC ---- Below 65% of total points; this grade only available under the CR/NC option (see above and see catalog).
N ------ Below 55% of total points because of documented serious illness or emergency that prevents the student from officially withdrawing from the course; not used as an alternative for an "F" grade; given at the instructor's option.
W ------ Official withdrawal from the course after the third week and prior to the end of the 10th week of classes (see catalog).

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

Students involved in academic dishonesty will receive an "F" grade for the course.

**STUDENT RESPONSIBILITIES**

Students are expected to attend all lectures and lab sessions, participate in all activities, and complete all course assignments on time.

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.

TEXTBOOK AND OTHER ASSIGNED INSTRUCTIONAL MATERIALS

Required texts:


Selected assigned text readings may also be placed on reserve in the library or photocopied for distribution to students.

OTHER INFORMATION

Important Dates:

Last day to add or drop a class ..............
Last day of erase period .....................
Last day for official withdrawal..............

Instructor's Office Hours (or by appointment):
Sample Schedule of Class Activities
Based Upon Fall 2004 Calendar

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>23-Aug</td>
<td>Lecture: Course Introduction</td>
</tr>
<tr>
<td>25-Aug</td>
<td>Exercise 1: Review of GIS Software I</td>
</tr>
<tr>
<td>30-Aug</td>
<td>Lecture: Overview of GIS Application in Environmental Science and Natural Resource Management</td>
</tr>
<tr>
<td>1-Sep</td>
<td>Exercise 2: Review of GIS Software II</td>
</tr>
<tr>
<td>6-Sep</td>
<td>Case Studies: Clean Water and Managing Water Resources</td>
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<tr>
<td>8-Sep</td>
<td>Exercise 3: Global Water Resources</td>
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<tr>
<td>13-Sep</td>
<td>Case Studies: GIS and Agriculture</td>
</tr>
<tr>
<td>15-Sep</td>
<td>Exercise 4: Water, the Renewable Resource</td>
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<td>20-Sep</td>
<td>Case Studies: Deforestation</td>
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<td>22-Sep</td>
<td>Exercise 5: Using Water Wisely</td>
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<td>27-Sep</td>
<td>Case Studies: Forests and Wildfires</td>
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<tr>
<td>29-Sep</td>
<td>Exercise 6: Water for a Desert City</td>
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<td>4-Oct</td>
<td>Lecture: Use of GPS to Develop a GIS</td>
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<tr>
<td>6-Oct</td>
<td>Exercise 7: Using GPS Software</td>
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<tr>
<td>11-Oct</td>
<td>Lecture: Metadata and Documentation</td>
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<tr>
<td>13-Oct</td>
<td>Exercise 8: Collecting GPS Data</td>
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<tr>
<td>18-Oct</td>
<td>Case Studies: Wildlife Conservation</td>
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<td>20-Oct</td>
<td>Exercise 9: Processing GPS Data</td>
</tr>
<tr>
<td>25-Oct</td>
<td>Lecture: Overview of Remote Sensing in GIS</td>
</tr>
<tr>
<td>27-Oct</td>
<td>Exercise 10: Incorporating Aerial/Satellite Digital Imagery into a GIS</td>
</tr>
<tr>
<td>Date</td>
<td>Activity</td>
</tr>
<tr>
<td>--------</td>
<td>------------------------------------</td>
</tr>
<tr>
<td>1-Nov</td>
<td><strong>Case Studies:</strong> Oil and Gas Production</td>
</tr>
<tr>
<td>3-Nov</td>
<td><strong>Lab:</strong> Group Project Data Workup</td>
</tr>
<tr>
<td>8-Nov</td>
<td><strong>Case Studies:</strong> Reclaiming Brownfields</td>
</tr>
<tr>
<td>10-Nov</td>
<td><strong>Lab:</strong> Group Project Data Workup</td>
</tr>
<tr>
<td>15-Nov</td>
<td><strong>Case Studies:</strong> Coastal Protection</td>
</tr>
<tr>
<td>17-Nov</td>
<td><strong>Lab:</strong> Group Project Data Workup</td>
</tr>
<tr>
<td>22-Nov</td>
<td><strong>Lecture:</strong> GIS Layouts and Poster Preparation</td>
</tr>
<tr>
<td>24-Nov</td>
<td><strong>Lab:</strong> Group Project Data Workup</td>
</tr>
<tr>
<td>29-Nov</td>
<td><strong>Lecture:</strong> Oral Presentations of GIS Information</td>
</tr>
<tr>
<td>1-Dec</td>
<td><strong>Lab:</strong> Group Project Data Workup</td>
</tr>
<tr>
<td>6-Dec</td>
<td><strong>Case Studies:</strong> Disaster Planning and Public Safety</td>
</tr>
<tr>
<td>8-Dec</td>
<td><strong>Lab:</strong> Group Project Data Workup</td>
</tr>
<tr>
<td>Finals Week</td>
<td><strong>Group Oral Presentations</strong></td>
</tr>
</tbody>
</table>