Course Syllabus

Department: Environmental Conservation and Horticulture

Date: January 2014

I. Course Prefix and Number: CON 227

Course Name: Applications of Global Positioning Systems

Credit Hours and Contact Hours: 1 credit hour and 1.5 contact hours

Catalog Description including pre- and co-requisites: supporting data required for grade prerequisite of ‘C’ or higher. This class will provide students with an introduction to basic theoretical concepts and practical hands-on use of global positioning systems (GPS) with strong emphasis in relation to natural resources management and data collection. (Also listed as GIS 227)

Relationship to Academic Programs and Curriculum including SUNY Gen Ed designation if applicable:

This course is required for AAS Natural Resources Conservation and AAS Natural Resources Conservation Law Enforcement.

II. Course Student Learning Outcomes: State the student learning outcome(s) for the course (e.g. Student will be able to identify…)

1. Students will demonstrate a basic, practical understanding of global positioning systems (GPS).

2. Students will practice practical applications of global positioning systems in natural resources professions.

3. Students will demonstrate, independently or in a team setting, proper use of a rover GPS unit to navigate to a predetermined geographic location in an outdoor environment.

4. Students will demonstrate, independently or in a team setting, proper use of a rover GPS unit to collect natural resources field data and then export field data from a rover GPS unit to a desktop computer for use in a geographical information system (GIS).

5. Students will devise a map that spatially depicts the data collected.

College Learning Outcomes Addressed by the Course: (check each College Learning Outcome addressed by the Student Learning Outcomes)

☐ writing  ☑ computer literacy
☐ oral communications  ☐ ethics/values
☐ reading  ☐ citizenship
☐ mathematics  ☐ global concerns
☐ critical thinking  ☐ information resources
III. Assessment Measures (Summarize how the college and student learning outcomes will be assessed): For each identified outcome checked, please provide the specific assessment measure.

<table>
<thead>
<tr>
<th>List identified College Learning Outcomes(s)</th>
<th>Specific assessment measure(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>eg: writing</td>
<td>eg: student will complete a research paper</td>
</tr>
<tr>
<td>Computer Literacy</td>
<td>Students will use GPS units and applicable software to collect data outside of the classroom, and then import the data into a GIS in the computer laboratory, perform an analysis with the data they collected using the computer laboratory, and then create a map product of the data.</td>
</tr>
</tbody>
</table>

IV. Instructional Materials and Methods

Types of Course Materials:

All learning materials will be provided by the Conservation Department.

Methods of Instruction (e.g. Lecture, Lab, Seminar …):

Lecture, outdoor hands-on experience and computer laboratory exercises.

V. General Outline of Topics Covered:

1. Basic GPS concepts (satellites, receivers, positioning, datums)
2. Applications in natural resources management.
4. Field collection (waypoints, files, PDOP)
5. Navigation
6. File collection, downloading, plotting.
7. Differential correction, post processing, real time correction (WAAS)
8. Creating and using data dictionaries.
9. Exporting data to a geographic information system (GIS).
10. Displaying GPS collected data.