PELLISSIPPI STATE COMMUNITY COLLEGE
MASTER SYLLABUS

ADVANCED GIS
SURV 2317

Class Hours: 2.0  Credit Hours: 3.0
Laboratory Hours: 2.0  Date Revised: Spring 2011

Catalog Course Description:

Advanced instruction in the use of commercial GIS Software (ArcGIS) and associated tools used in various courses and GIS projects. Introduces the concept of work automation through models, VB scripts and field calculations. Presents methods that enable a GIS professional to register and rectify raster data for use in GIS projects. Students will perform network and advanced spatial analysis. Students also are trained to use 3D tools to visualize GIS data.

Entry Level Standards:

Students should have knowledge and experience working in the Windows operating system environment, including the use of the Microsoft Office software components. Students should have basic experience with ArcGIS® software. Students should also have the ability to use a standard keyboard and maintain a rate of 10 words per minute. Students should also have mathematics, writing, and verbal skills at the college level.

Prerequisites:

SURV 2200

Corequisite:

None

Textbook(s) and Other Course Materials:

GIS Fundamentals, Paul Bolstad, Eider Press

I. Week/Unit/Topic Basis:

1. Map projection, coordinate systems and map reading skill review
2. Using existing digital data for base maps
3. Scanning, registration and digitizing of maps
4. Geometric correction of images
   Exam 1
5. Working with geodatabases
6. Working with geodatabases
7. ArcGIS Raster tools
8. ArcGIS Raster extensions
II. Course Goals*:

The course will:

A. Learn how to effectively and efficiently use the target software tools. I, II, IV
B. Learn how to select the most appropriate software tools to complete a GIS project. I, II, IV
C. Understand the relationship between GIS analysis and database management. I, II, IV

*Roman numerals after course objectives reference goals of the GIS program.

III. Expected Student Learning Outcomes*:

The student will be able to:

1. Demonstrate effective and efficient use of several GIS software tools. A, B
2. Connect to remote computers, locate desired data sets, and retrieve data of various formats over the Internet or from archive media. A, B
3. Acquire land records from a variety of sources in different formats and combine these into a comprehensive and accurate map. A
4. Convert data from a different GIS format. A, B
5. Understand the use of Meta data and be able to document it. A, B
6. Create new GIS attribute table and make field calculations. A, B, C
7. Rectify a raster image. A, B
8. Create vector data by digitizing from a background map or raster image. A, B
9. Use network and path analysis tools with raster and vector data. A, B
10. Use 3D tools to visualize raster and vector data. A, B
11. Create a complex layout and print on large format printer. A, B
12. Create charts and graphs from GIS attribute data. A, B

* Capital letters after Expected Student Learning Outcomes reference the course goals listed above.
V. Evaluation:

A. Testing Procedures: 60 - 65% of grade

Three tests will be administered (two tests plus the final) counting for approximately 65% of the final grade. Tests will be True-False, Multiple Choice and Short Answer Essay.

B. Laboratory Expectations: 30 - 35% of grade

Students will be assigned group and/or individual projects. The ability to work with others, the ability to make efficient use of equipment, and the level at which students perform will contribute to the grade.

C. Field Work:

N/A

D. Other Evaluation Methods: 5 -10% of grade

Quizzes:

Quizzes may be given by the instructor. Most quizzes will be un-scheduled and randomly given. They cover the previous session’s materials or the reading assignment for that day. There is no make-up or extra credit given for quizzes missed.

Homework:

Students may also be required to hand in answers to select questions at the end of each chapter or other appropriate homework at the instructor’s discretion. All written assignments must be handed in on 8 ½" x 11” paper with smooth edges, or forms provided by your instructor. All written assignments will be assessed a 10% penalty for each school day it is late. All student work submitted for evaluation may be retained by the instructor.

E. Grading Scale:

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90 - 100</td>
<td>A</td>
</tr>
<tr>
<td>85 - 89</td>
<td>B+</td>
</tr>
<tr>
<td>80 - 84</td>
<td>B</td>
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<tr>
<td>75 - 79</td>
<td>C+</td>
</tr>
<tr>
<td>70 - 74</td>
<td>C</td>
</tr>
<tr>
<td>60 - 69</td>
<td>D</td>
</tr>
<tr>
<td>Below 60</td>
<td>F</td>
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</tbody>
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VI. Policies:

A. Attendance Policy:

Pellissippi State expects students to attend all scheduled instructional activities. As a minimum, students in all courses (excluding distance learning courses) must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course. Individual departments/programs/disciplines, with the approval of the vice president of the Learning Division, may have requirements that are more stringent. In very specific circumstances, an appeal of the policy may be addressed to the head of the department in which the course was taken. If further action is warranted, the appeal may be addressed to the vice president of the Learning Division.

B. Academic Dishonesty:

Academic misconduct committed either directly or indirectly by an individual or group is subject to disciplinary action. Prohibited activities include but are not limited to the following practices:

- Cheating, including but not limited to unauthorized assistance from material, people, or devices when taking a test, quiz, or examination; writing papers or reports; solving problems; or completing academic assignments.
• Plagiarism, including but not limited to paraphrasing, summarizing, or directly quoting published or unpublished work of another person, including online or computerized services, without proper documentation of the original source.
• Purchasing or otherwise obtaining prewritten essays, research papers, or materials prepared by another person or agency that sells term papers or other academic materials to be presented as one's own work.
• Taking an exam for another student.
• Providing others with information and/or answers regarding exams, quizzes, homework or other classroom assignments unless explicitly authorized by the instructor.
• Any of the above occurring within the Web or distance learning environment.

C. Accommodations for disabilities:

Students who need accommodations because of a disability, have emergency medical information to share, or need special arrangements in case the building must be evacuated should inform the instructor immediately, privately after class or in her or his office. Students must present a current accommodation plan from a staff member in Services for Students with Disabilities (SSWD) in order to receive accommodations in this course. Services for Students with Disabilities may be contacted by going to Goins 127, 132, 134, 135, 131 or by phone: 539-7153 or TTY 694-6429. More information is available at www.pstcc.edu/departments/swd/.

D. Other Policies:

Use of Equipment:
Any act of misuse, vandalism, malicious or unwarranted damage or destruction, defacing, disfiguring, or unauthorized use of property/equipment belonging to Pellissippi State is subject to disciplinary sanction.