

PELLISSIPPI STATE TECHNICAL COMMUNITY COLLEGE
MASTER SYLLABUS

DIGITAL IMAGES & BASE MAPS
GIS 1020

Class Hours: 3.0

Credit Hours: 3.0

Laboratory Hours: 0.0

Date Revised: Fall 00

NOTE: This course is not designed for transfer credit.

Catalog Course Description:

Presents software and techniques used to acquire and manage digital images used to make GIS base maps. Introduces methods that enable a GIS professional to register and rectify raster data for use in GIS projects. Students learn digital photogrammetric and field GPS methods that make it possible to create an orthophotograph from historical aerial photographs and to mosaic multiple aerial photographs into a seamless image for GIS use.

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 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.

Prerequisite:

GIS 1010

Textbook(s) and Other Course Materials:

TBA

I. Week/Unit/Topic Basis:

TBA

II. Course Objectives*:

- A. Understand principles of Aerial Photography and Photogrammetry. I, II
- B. Understand importance of good base maps as a starting point for GIS project development. I, II, IV
- C. Understand importance of efficiency and accuracy in developing GIS base maps. I, III, IV

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

III. Instructional Processes*:

Students will:

- 1. Use spatial elements, measurements, locations and references to develop graphic and numerical awareness of the real world. Understand how information in the form of maps

and numbers connect to the physical world. *Numerical Literacy Outcome, Transitional Strategy*

2. Be familiar with the basic procedures and the overall quality of GIS databases. *Numerical Literacy Outcome, Problem Solving and Decision Making Outcome*
3. Participate in open discussions regarding the strengths and weaknesses of GIS procedures and what improvements might be made in future releases. *Active Learning Strategies, Communication Outcome, Transitional Strategy*
4. Use the Internet and electronic mail to communicate effectively between the instructor, other students, and for information gathering. *Technological Literacy Outcome, Information Literacy Outcome*
5. Internalize the work ethic by demonstrating regular attendance, punctuality, dependability, cooperation with teachers and peers, and professionalism. *Personal Development Outcome*

*Strategies and outcomes listed after instructional processes reference Pellissippi State's goals for strengthening general education knowledge and skills, connecting coursework to experiences beyond the classroom, and encouraging students to take active and responsible roles in the educational process.

IV. Expectations for Student Performance*:

Upon successful completion of this course, the student should be able to:

1. Demonstrate understanding of aerial photos and the processes required to convert it to digital form, register it in GIS software, and perform geometric corrections. A, B, C
2. Demonstrate understanding of coordinate systems used for GIS base maps and methods used to change GIS files from one system to another. A, B, C
3. Demonstrate understanding of digital images and processes used to interpret information from them for use in GIS analysis. A, B, C
4. Use the variety of GIS and photogrammetric tools to produce a final photo basemap to be used as a starting point in GIS projects. A, B, C
5. Mosaic several images together to make a seamless photo basemap. A, B, C
6. Demonstrate understanding of major raster file formats and methods used to convert between formats. A, B, C
7. Collect data on ground control points and ties points to use in registration, rectification and mosaicking. A, B, C
8. Use aerial camera data in the photo rectification process. A, B, C
9. Use GPS technology to collect ground control points and other data to use with digital photographic base maps. A, B, C

*Letters after performance expectations reference the course objectives listed above.

V. Evaluation:

A. Testing Procedures: 65% of grade

Four tests will be administered (three tests plus the final) counting for approximately 65% of

the final grade.

B. Laboratory Expectations: 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:

N/A

VI. Policies:

A. Attendance Policy:

Pellissippi State Technical Community College expects students to attend all scheduled instructional activities. As a minimum, students in all courses must be present for at least 75 percent of their scheduled class and laboratory meetings in order to receive credit for the course.

B. Academic Dishonesty:

Plagiarism, cheating and other forms of academic dishonesty are prohibited. A student guilty of academic misconduct, either directly or indirectly through participation or assistance, is immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions that may be imposed through the regular Pellissippi State procedures as a result of academic misconduct, the instructor has the authority to assign an F for the exercise or examination or to assign an F in the course.

C. 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.