SAN JUAN COLLEGE
Success Matters

GIST-118-GEOSPATIAL ANALYSIS 4 CREDITS

SYLLABUS

CATALOG DESCRIPTION

This course studies various analysis methods pertaining to maps and geospatial data including distance finding and measurement, position analysis, area and volume measurement, surface analysis, and spatial pattern analysis. Also studied are interpretations of the lithosphere, atmosphere and the human landscape.

Prerequisites: None

Semester Offered: Spring

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in…

BROAD AND SPECIALIZED LEARNING
Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING
Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT
Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION
Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY
Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES
Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

Course Learning Outcomes

Upon successful completion of the course, the student will be able to…

1. Understand the various methods and skills of determining distance.
2. Understand and use GIS and compasses to determine direction.
3. Understand position finding and navigation.

4. Understand GPS and mapping.
5. Understand and perform area and volume calculations.
6. Understand the theory and practice of geospatial distribution, patterns and clustering.
7. Interpret the lithosphere, atmosphere and biosphere.
8. Make interpretations about the human landscape.

Specific Learning Outcomes

Upon successful completion of the course, the student will be able to…

1. Use a GIS to determine the following distance analyses: (B,C,I)
    a. Euclidian distance
    b. buffering
    c. nearness
    d. surficial distance
    e. cost distance
2. Use a GIS, spherical trigonometry and compass to determine: (B,C,I)
    a. True, magnetic, and grid north
    b. Direction between points
    c. Large distances
3. Perform geospatial analyses pertaining to position and navigation: (B,C,I)
    a. Understand and use appropriate coordinate systems
    b. Understand bearings and distance calculations
4. Learn the principles of GPS. (B,C,I)
5. Perform area and volume calculations using vector and raster data. (B,C,I)
6. Understand and perform the following surface operations and analyses: (B,C,I)
    a. Neighborhood
    b. Zonal
    c. Elevation Analysis
        i. Working with DEM's and TIN's
        ii. Hillshading
        iii. Slope and aspect
        iv. Surface Curvature
        v. Viewshed and watershed analyses
        vi. Interpolation methods
7. Analyze spatial patterns. (B,C,E,I)
8. Understand and interpret maps and models of the lithosphere, biosphere and atmosphere. (B,C,I)
9. Understand and create maps pertaining to the human landscape. (B,C,E,I)