



INSTRUCTIONAL PACKAGE

NRM 207
Geographic Information Systems

Effective Term
Spring 2022

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Forestry Management Technology Department & Program Mission Statement

The mission of the Department, the Programs and its faculty is to support the broader College's goals as detailed above, but also provide a comprehensive silviculturally based environmental education that recognizes the broad multiple uses demanded from the forest environments of South Carolina, the Southeastern United States and the nation.

- We want our graduates to recognize how their daily decisions will have a lasting impact on the social, cultural, economic, and environment fabric of our state, region and country.
- Their natural resource decision making process must be based on the highest professional and ethical standards for the long term protection and promotion of a high demand resource.
- We strive to prepare well trained forest, wildlife and natural resource technicians for both public and private sector employers and promote career opportunities for our graduates.

Part I: Course Information

Effective Term: Spring 2022

COURSE PREFIX: NRM 207

COURSE TITLE: Geographic Information Systems

CONTACT HOURS: 2.0 Lecture, 3.0 Lab

CREDIT HOURS: 3.0

RATIONALE FOR THE COURSE:

Forestry is a profession dealing with the management of land resources. Effective management requires understanding the spatial distribution or location of resources (timber, grass, roads, etc.). The course focuses on the manipulation of information in the form of maps, satellite imagery, drone acquired imagery, Global Positioning Systems (GPS) and Geographic Information Systems (GIS). These skills are fundamental for managing resources for the benefit of timber production, wildlife management, etc.

COURSE DESCRIPTION:

This course is the study of Geographic Information Systems (GIS) concepts, including coordinate systems, projections, datums, data models and sources, spatial statistics, queries and analyses, and basic cartographic principles. Emphasis is on applications within the NRM field.

PREREQUISITES/CO-REQUISITES:

Credit level [NRM 106](#) Minimum Grade of C or Credit level [NRM 106](#) Minimum Grade of TC.

***Online/Hybrid** courses require students to complete the [DLi Orientation Video](#) prior to enrolling in an online course.

REQUIRED MATERIALS:

2021-2022

Please visit the [BOOKSTORE](#) online site for most current textbook information. Use the direct link below to find textbooks.

Enter the semester, course prefix, number and section when prompted and you will be linked to the correct textbook.

TECHNICAL REQUIREMENTS:

Access to Desire2Learn (D2L), HGTC's student portal for course materials.
myHGTC and college email access.

STUDENT IDENTIFICATION VERIFICATION:

Students enrolled in online courses will be required to participate in a minimum of one (1) proctored assignment and/or one (1) virtual event to support student identification verification. Please refer to your Instructor Information Sheet for information regarding this requirement.

CLASSROOM ETIQUETTE:

As a matter of courtesy to other students and your professor, please turn off cell phones and other communication/entertainment devices before class begins. If you are monitoring for an emergency, please notify your professor prior to class and switch cell phone ringers to vibrate.

NETIQUETTE: is the term commonly used to refer to conventions adopted by Internet users on the web, mailing lists, public forums, and in live chat focused on online communications etiquette. For more information regarding Netiquette expectations for distance learning courses, please visit [Online Netiquette](#).

SAFETY: Prior to going to the woods for a field lab, the instructor will hold a safety briefing identifying the boundaries of the study area, any known hazards and the proper use of Personal Protective Equipment assigned to that exercise. Long pants and boots are required for field labs.

Part II: Student Learning Outcomes

COURSE LEARNING OUTCOMES and ASSESSMENTS*:

Module #1

Materials Covered: Remote Sensing and GIS

*Assessment(s): Unit Test
 Skill based labs

Learning Outcomes:

1. Define remote sensing and explain how remotely sensed data are used in Geographic Information Systems (GIS)

2. Identify different sources of remotely sensed data, including aerial imagery, satellite imagery, LiDAR, SLAR and drones.
3. Identify and interpret remotely sensed data acquired from aerial imagery, satellite imagery, LiDAR, SLAR and drones.
 - a. Identify timber types and drainage locations on imagery.
 - b. Interpret land usage patterns observed on imagery.
 - c. Identify roads, buildings, geologic features using imagery.
4. Introduce heads-up digitizing in GIS.

Module #2

Materials Covered: Map Projections and Coordinate Systems in GIS, Integrating GPS

*Assessment(s): Unit Test
Skill based labs

Learning Outcomes:

1. Define geographic coordinate systems and map projections
2. Identify the most commonly used geographic and projected coordinate systems used in GIS and GPS.
3. Learn how to project data manually, project data "on the fly" and perform geographic transformations.
4. Collect accurate data with a GPS receiver.
5. Manage, edit and project data collected with a GPS receiver.
6. Develop maps using projected/transformed data and data collected with a GPS receiver.

Module #3

Materials Covered: Data Management, Editing and Analysis

*Assessment(s): Unit Test
Skill based labs

Learning Outcomes:

1. Create, delete, edit, split and merge features using various construction tools.
2. Practice editing with snapping and modify a snapping environment.
3. Define a geodatabase and develop geodatabases, feature classes and features.
4. Convert shapefiles to feature classes.
5. Create, edit and calculate attributes; Modify, expand and relate attribute tables.
6. Use selection, query, join and relate tools.
7. Dissolve, clip, buffer and overlay features.

Module #4

Materials Covered: Advanced Map Creation, Online Maps and Interactive Maps

*Assessment(s): Unit Test
Skill based labs

Learning Outcomes:

1. Develop a user friendly map template.
2. Define appropriate map symbols and create custom map symbols.
3. Use labels, define rules for label placement, create graphic and dynamic labels.
4. Create maps with various print sizes and determine how to adjust symbols, labels, and text to scale.
5. Create online maps using ArcGIS Online and ArcPro.
6. Create an interactive online map.

Module #5

Materials Covered: Analyzing Geospatial Data, Capstone Project

*Assessment(s): Skill based labs
Capstone Project
Skills Based Final – **PLO Forestry #2 - Navigate/mark waypoints using GPS (current technology), upload/download data to/from GIS software, delineate forest stand boundaries and calculate land areas within GIS based on GPS waypoints**

Learning Outcomes:

1. Explore Spatial Analyst.
2. Convert polygon data to raster data and reclassify raster data.
3. Create a plan for capstone project including data needs, final product and end user.
4. Collect data for capstone project.
5. Create a template and interface for capstone project.
6. Present capstone project to class either in-person or in an online interactive environment.

****Students – please refer to the Instructor’s Course Information sheet for specific information on assessments and due dates.***

Part III: Grading and Assessment

EVALUATION OF REQUIRED COURSE MEASURES/ARTIFACTS*:

Students’ performance will be assessed and the weight associated with the various measures/artifacts are listed below.

EVALUATION*

Unit Tests	40%
Lab Exercises	30%
Capstone Project	20%
Final Exam	10%
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	100%

****Students, for the specific number and type of evaluations, please refer to the Instructor's Course Information Sheet.***

GRADING SYSTEM:

This course follows the College's grading system, as delineated in the Catalog. Please note the College adheres to a 10 point grading scale A = 100 – 90, B = 89- 80, C = 79 – 70, D = 69 – 60, F = 59 and below.

Grades earned in courses impact academic progression and financial aid status. Before withdrawing from a course, be sure to talk with your instructor and financial aid counselor about the implications of that course of action. Ds, Fs, Ws, WFs and Is also negatively impact academic progression and financial aid status.

The Add/Drop Period is the first 5 days of the semester for **full term** classes. Add/Drop periods are shorter for accelerated format courses. Please refer to the [academic calendar](#) for deadlines for add/drop. You must attend at least one meeting of all of your classes during that period. If you do not, you will be dropped from the course(s) and your Financial Aid will be reduced accordingly.

Part IV: Attendance

Horry-Georgetown Technical College maintains a general attendance policy requiring students to be present for a minimum of 80 percent (80%) of their classes in order to receive credit for any course. Due to the varied nature of courses taught at the college, some faculty may require up to 90 percent (90%) attendance. Pursuant to 34 Code of Federal Regulations 228.22 - Return to Title IV Funds, once a student has missed over 20% of the course or has missed two (2) consecutive weeks, the faculty is obligated to withdraw the student and a student may not be permitted to reenroll. **Instructors define absentee limits for their class at the beginning of each term; please refer to the Instructor Course Information Sheet.**

Part V: Student Resources



THE STUDENT SUCCESS AND TUTORING CENTER (SSTC):

The SSTC offers to all students the following **free** resources:

1. **Academic tutors** for most subject areas, **Writing Center support**, and **college success skills**.
2. Online **tutoring** and academic support resources.
3. Professional and interpersonal communication **coaching** in the EPIC Labs.

Visit the [Student Success & Tutoring Center](#) website for more information. To schedule tutoring, contact the SSTC at ssc@hgtc.edu or self-schedule in the Penji iOS/Android app or at www.penjiapp.com. Email ssc@hgtc.edu or call SSTC Conway, 349-7872; SSTC Grand Strand, 477-2113; and SSTC Georgetown, 520-1455, or go to the [Online Resource Center](#) to access on-demand resources.



STUDENT INFORMATION CENTER: TECH Central

TECH Central offers to all students the following **free** resources:

1. **Getting around HGTC:** General information and guidance for enrollment, financial aid, registration, and payment plan support!
2. Use the [Online Resource Center \(ORC\)](#) including Office 365 support, password resets, and username information.
3. **In-person workshops, online tutorials and more services** are available in Desire2Learn, Student Portal, Degree Works, and Office 365.
4. **Chat with our staff on TECH Talk**, our live chat service. TECH Talk can be accessed on the student portal and on TECH Central's website, or by texting questions to (843) 375-8552.

Visit the [Tech Central](#) website for more information. Live Chat and Center locations are posted on the website. Or please call (843) 349 – TECH (8324), Option #2.

STUDENT TESTING:

Testing in an **online/hybrid** course may be accomplished in a variety of ways:

- Test administered within D2L
- Test administered in writing on paper
- Test administered through Publisher Platforms

Furthermore, tests may have time limits and/or require a proctor.

Proctoring can be accomplished either face-to-face at an approved site or online through our online proctoring service. To find out more about proctoring services, please visit the [Online Testing](#) section of the HGTC's Testing Center webpage.

The **Instructor Information Sheet** will have more details on test requirements for your course.

DISABILITY SERVICES:

HGTC is committed to providing an accessible environment for students with disabilities. Inquiries may be directed to HGTC's [Accessibility and Disability Service webpage](#). The Accessibility and Disability staff will review documentation of the student's disability and, in a confidential setting with the student, develop an educational accommodation plan.

Note: It is the student's responsibility to self-identify as needing accommodations and to provide acceptable documentation. After a student has self-identified and submitted documentation of a disability, accommodations may be determined, accepted, and provided.

STATEMENT OF EQUAL OPPORTUNITY/NON-DISCRIMINATION STATEMENT:

Horry-Georgetown Technical College prohibits discrimination and harassment, including sexual harassment and abuse, on the basis of race, color, sex, national or ethnic origin, age, religion, disability, marital or family status, veteran status, political ideas, sexual orientation, gender identity, or pregnancy, childbirth, or related medical conditions, including, but not limited to, lactation in educational programs and/or activities.

TITLE IX REQUIREMENTS:

All students (as well as other persons) at Horry-Georgetown Technical College are protected by Title IX—regardless of their sex, sexual orientation, gender identity, part- or full-time status, disability, race, or national origin—in all aspects of educational programs and activities. Any student, or other member of the college community, who believes that he/she is or has been a victim of sexual harassment or sexual violence may file a report with the college's Chief Student Services Officer, campus law enforcement, or with the college's Title IX Coordinator, or designee.

*Faculty and Staff are required to report incidents to the Title IX Coordinators when involving students. The only HGTC employees exempt from mandatory reporting are licensed mental health professionals (only as part of their job description such as counseling services).

INQUIRIES REGARDING THE NON-DISCRIMINATION/TITLE IX POLICIES:

Student and prospective student inquiries concerning Section 504, Title II, and Title IX and their application to the College or any student decision may be directed to the Vice President for Student Affairs.

Dr. Melissa Batten, VP Student Affairs

Title IX Coordinator

Building 1100, Room 107A, Conway Campus

PO Box 261966, Conway, SC 29528-6066

843-349-5228

Melissa.Batten@hgtc.edu

Employee and applicant inquiries concerning Section 504, Title II, and Title IX and their application to the College may be directed to the Vice President for Human Resources.

Jacquelyne Snyder, VP Human Resources

EEO and Title IX Coordinator

Building 200, Room 212A, Conway Campus

PO Box 261966, Conway, SC 29528-6066

843-349-5212

Jacquelyne.Snyder@hgtc.edu