



Navajo Technical University

<http://navajotech.edu>

P.O. Box 849, Crownpoint, NM
87313-0849

Tel: (505) 786-4100 Fax: (505) 786-5644

Course Title: Fundamentals of Cartography
Course #: GIT 105-1

Credit Hours: 3.0
Semester: Spring 2022
Cap: 10

Faculty: Nsalambi V. Nkongolo, PhD
Office: Tech 325

E-mail: [nnkongolo@navajotech.edu](mailto:nkongolo@navajotech.edu)
Cell phone (573) 292-7783
Office Phone: (505) 387-7508

Office Hours : MW 9:00-11:00 am; TR: 10:00-12:00 pm

Preferred Communication (email and/or text; will respond within 24 hours)

Class Location: Tech 325

Class Meeting Times: MW 11:00 am – 12:20 pm

Required Materials:

Textbooks:

1. Map USE Reading Analysis Interpretation, 8e, ISBN # 9781589484429
2. Cartography: Thematic Map Design, 6th Edition, Borden Dent et al.
<http://highered.mheducation.com/sites/0072943823/index.html>

Tools: Jump drive (to save your work)

Lab Fee (if applicable): None

Mission Statement

Navajo Technical University's mission is to provide University readiness programs, certificates, associate, baccalaureate, and graduate degrees. Students, faculty, and staff will provide value to the Diné community through research, community engagement, service learning, and activities designed to foster cultural and environmental preservation and sustainable economic development. The University is committed to a high quality, student-oriented, hands-on-learning environment based on the Diné cultural principles: *Nitsáhákees, Nahátá, Íina, Siihasin.*

Course Description

This course covers the design, purpose, use, and proper development of maps. Concepts covered include mapping with ArcView software, vector vs. raster data, history of mapmaking, the map design process, the legend editor, classification in the legend editor, palettes, typography, map projections, scale, and layout. Upon completion of the course, students are able to use the ArcView software to design and print high quality maps.

Course Outcomes	Course Measurements
A strong understanding of the basic principles, map projections and concepts of the science of cartography	Complete reading assignments, homework assignments, exams, projects, and quizzes.

A strong understanding of the techniques and methods of presenting data in graphic forms	Lab assignments and projects are designed to give you practical experience, develop core GIS skills, and experience course material firsthand. Exams and quizzes test your knowledge and subject mastery. Critical thinking questions require you to solve practical problems and apply what you have learned.
A strong understanding of how to interpret maps, atlases, and aerial photography effectively	
A strong understanding of geographic data and its formats	
A strong ability to select the most suitable mapping methods for designing efficient maps	
A strong ability to design and create the most effective map	
A strong ability to design maps using ARGIS and other software	
A strong ability to use online cartography applications	
A strong knowledge of apply relevant mapping techniques to develop maps suitable for effectively revealing and communicating the spatial structure of particular phenomena	
An ability to communicate effectively, and spatially through maps	

Connections to Program Assessment (course-embedded measures)

List program outcomes to be measured

General Education Assessment

List general education Outcomes to be measured

Course Activities

Week	Date	Chapters	Assignments	Quizzes
1	Jan 19	Ch 1: Introduction to Thematic Mapping	Lab 1: Getting Started: Making Your First Map	
2	Jan 24 Jan 24	Ch 2: Basic Geodesy, Coordinate Systems, and Scale	Lab 2: Creating a Base Map	
3	Feb 2	Ch 3: Map Projections	Lab3: Map Projections	Quiz1
4	Feb 7 Feb 9	Ch 4: The Nature of Geographic Data and the Selection of Thematic Map Symbols	Lab 4: Data Entry	

5	Feb 14 Feb 16	Ch 5: Descriptive Statistics and Data Classification	Lab 5: Chart and graph	Quiz2
6	Feb 23 Feb 28	Ch 6: Mapping Enumeration & Other Areally Aggregated Data: The Choropleth Map	Lab 6: Thematic Mapping: The Choropleth Map	
7	Marc 2	Ch 7: The Dot Density Map	Lab 7: Thematic Mapping: The Dot Density Map	Quiz 3
March 7-11: Mid Term				
March 14-18: Spring Break				
7	March 21	Ch 7: The Dot Density Map	Lab 7: Thematic Mapping: The Dot Density Map	
8	March 23	Ch 8: From Point to Point: The Proportional Symbol Map	Lab 8: Thematic Mapping: Graduated Symbol Mapping	
8	March 28	Ch 9: Mapping Geographic Surfaces: Isarithmic & Three-Dimensional Maps	Lab 9: Thematic Mapping: Proportional Symbol Mapping The	Quiz4
9	April 4	Ch 10: The Cartogram: Value-by-Area Mapping		
10	April 6	Ch 11: Dynamic Representation: The Design of Flow Maps	Lab 10: Thematic Mapping: The Flow Map	
11	April 11	Ch 12: The Map Design Process & the Elements of Map Composition	Lab 11: Map Labeling	Quiz 5
12	April 13	Ch 13: Making the Map Readable: The Intelligent Use of Type		
13	April 18	Ch 14: Principles for Color Thematic Maps		

14	April 20	Ch 15: Printing Fundamentals and Prepress Operations for the Cartographer		
15	April 23	Ch 16: Introduction to Virtual and Web Mapping		
16	April 27	Ch 17: Effective Graphing for Cartographers		Quiz6
	May 2	Project/Field visit		
	May 4	Project Presentation		
	May 9	Final Exam		
	May 12	Final Grades Due		

Grading Plan

Homework	20%	A = 100 - 90%
Mid-term	20%	
Final Exam	25%	B = 89 - 80%
Project	10%	
Quizzes	20%	C = 79 - 70%
Class Participation	3%	D = 69 - 60%
Portfolio:	2%	F < 60%

Grading Policy

Each student must do his or her own homework and case studies. Discussion among students on homework and cases is encouraged for clarification of assignments, technical details of using software, and structuring major steps of solutions - especially on the course's Web site. Students must do their own work on the homework and exam. Cheating and Plagiarism are strictly forbidden. Cheating includes but is not limited to: plagiarism, submission of work that is not the student's own, submission or use of falsified data, unauthorized access to exam or assignment, use of unauthorized material during an exam, supplying or communicating unauthorized information for an assignment or exam.

Participation

Students are expected to attend and participate in all class activities- as listed above, as it **is 3% of the grade**. Points will be given to students who actively participate in class activities including field trips, laboratories, and ask questions of guest speakers and other presenters.

Cell phone and headphone use

Please turn cell phones off or place them on silence or vibrate mode **before** coming to class. Also, answer cell phones **outside of class** (not in the classroom). Exercising cell phone use courtesy is appreciated by both the instructor and classmates. Headphones are to be removed before coming to class.

Attendance Policy

Students are expected to regularly attend all classes for which they are registered. A percentage of the student's grade will be based on class attendance and participation. Absence from class, regardless of the reason, does not relieve the student of his/her responsibility to complete all course work by the required deadlines. Furthermore, it is the student's responsibility to obtain notes, handouts, and any other information covered when absent from class and to arrange to make up any in-class assignments or tests if permitted by the instructor. Incomplete or missing assignments will necessarily affect the student's grades. Instructors will report excessive and/or unexplained absences to the Counseling Department for investigation and potential intervention. Instructors may drop students from the class after three (3) absences unless prior arrangements are made with the instructor to make up work and the instructor deems any excuse acceptable.

Study Time Outside of Class for Face-to-Face Courses

For every credit hour spent in a class, a student is expected to spend two hours (2) outside of class studying the course materials.

Study Time for Hybrid or Blended Courses

For a hybrid or blended course of one (1) credit hour, a student is expected to spend three (3) hours per week studying the course materials.

Study Time for Online Courses

For an online course of one (1) credit hour, a student is expected to spend four hours (4) per week studying the course materials.

Academic Integrity

Integrity (honesty) is expected of every student in all academic work. The guiding principle of academic integrity is that a student's submitted work must be the student's own. Students who engage in academic dishonesty diminish their education and bring discredit to the University community. Avoid situations likely to compromise academic integrity such as: cheating, facilitating academic dishonesty, and plagiarism; modifying academic work to obtain additional credit in the same class unless approved in advance by the instructor, failure to observe rules of academic integrity established by the instructor. **The use of another person's ideas or work claimed as your own without acknowledging the original source is known as plagiarism and is prohibited.**

Diné Philosophy of Education

The Diné Philosophy of Education (DPE) is incorporated into every class for students to become aware of and to understand the significance of the four Diné philosophical elements, including its affiliation with the four directions, four sacred mountains, the four set of thought processes and so forth: Nitsáhákees, Nahát'á, Íína and Siih Hasin which are essential and relevant to self-identity, respect and wisdom to achieve career goals successfully.

Students with Disabilities

The Navajo Technical University and the School of Science are committed to serving all enrolled students in a non-discriminatory and accommodating manner. Any student who feels he/she may need an

accommodation based on the impact of disability or needs special accommodations should inform NTU in accordance with the procedures of the subsection entitled “Students with Disabilities” under Section 7: Student Support Programs, NTU Student Handbook.

Final Exam Date: May 9, 2022