

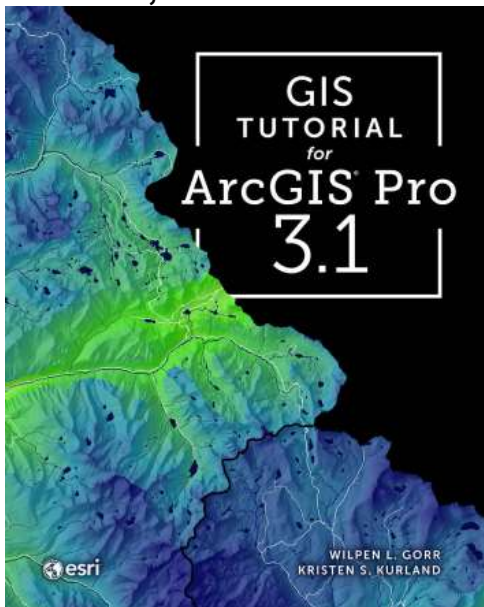
**Syllabus**  
Advance Geographic Information Systems  
**CE5390 & CE 4375 - 4377**  
**Spring 2024**

**Instructors:** Professor Raed Aldouri  
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**Class:** Hybrid

**Office:** Engineering A219

**Text:** *GIS Tutorial for ArcGIS Pro 3.1* by Wilpen Gorr and Kristen Kurland, 5<sup>th</sup> ED.



**COURSE DESCRIPTION**

The purpose of this course is to introduce the theory and practice of Geographic Information Systems (GIS). Cartographic, database, technical, and scientific issues involved in creating a useful GIS project will be presented. Databases and their analysis is another emphasis in the course. The class will provide a substantial information for the leading GIS new software ArcGIS PRO and applications.

*GIS Tutorial for ArcGIS Pro 3.1* is the book of choice for classrooms seeking to develop their expertise with Esri's premier desktop geographic information system (GIS) technology.

You will gain the following knowledge and skills:

- Share your work in ArcGIS StoryMaps and visualize your data in ArcGIS Dashboards.

- Create simple expressions in SQL and Python.
- Learn how to use street networks for routing.
- Learn how to analyze satellite imagery to provide intelligence.
- Learn to turn maps into animations.

Topics include:

- Principles of Geographic Information Systems
- The spatial data models both vector & raster
- Data analysis
- Computer cartography versus GIS data structures
- Import data collected by remote sensing and GPS and other sources
- Data analysis tools & procedures
- Web GIS, Field Data Collector, ArcGIS Server & ArcGIS Pro platforms & Web services

## **GRADING**

The grades are earned by completing homework questions, exercises, midterm exams, project and attendance. Homework questions will be posted on Blackboard with due date. The exercises are due a week from the day assigned:

Midterm Exam	25%
Project	25%
Exercises, HW and quizzes	50%

## **Exercises**

This is an exercise-based course – as such you have to complete all the assigned exercises. The exercises are due in a week from the date assigned. A penalty of 10% per day will be deducted for late exercises.

Map elements should be placed on the maps which includes title, body, scale, legend, north arrow and grid. Missing elements will result in point's deduction.

## **Exams**

The exams will focus on your comprehension of the material in the text and your understanding of GIS fundamentals. The exams will be derived from lectures and exercise materials, key concepts, and analysis.