# Introduction Geographic Information Systems

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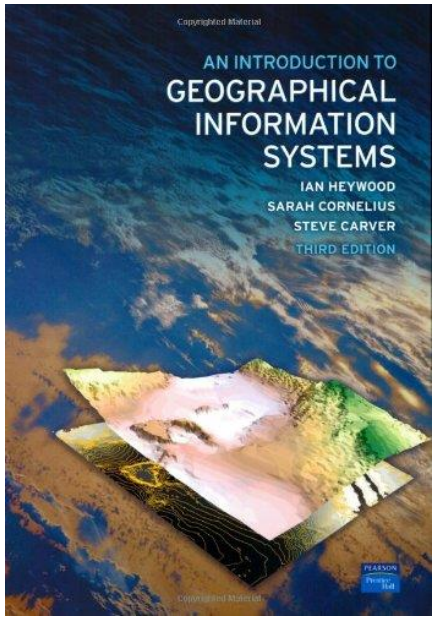
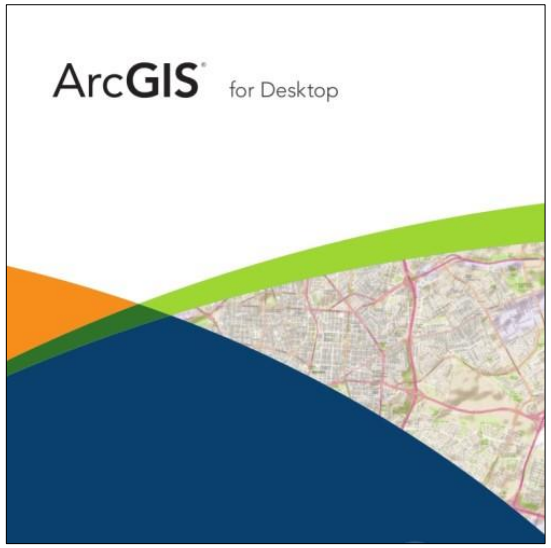
Ankara University

Introduction

# Textbook

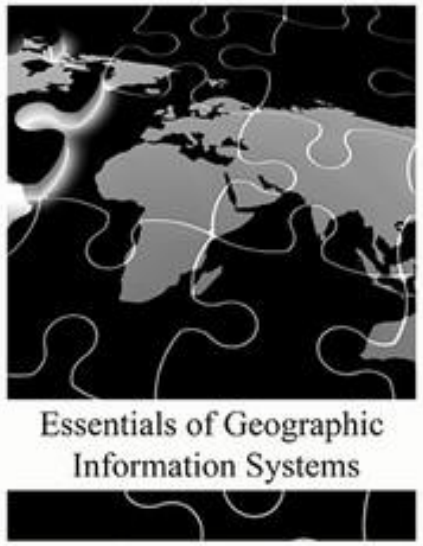



- Burrough, P. A., McDonnell, R. A., & Lloyd, C. D. (2015). Principles of geographical information systems. Oxford university press.




- Ocak, F., Sert, S., Ünsal Ö. (2012). ArcGIS 10.1 for Desktop. Esri Bilgi Sistemleri Mühendislik ve Eğitim Ltd. Şti. Ankara.


- Turoğlu, H. (2016). Coğrafi Bilgi Sistemlerinin Temel Esaslar. İstanbul: Çantay Yayınları.

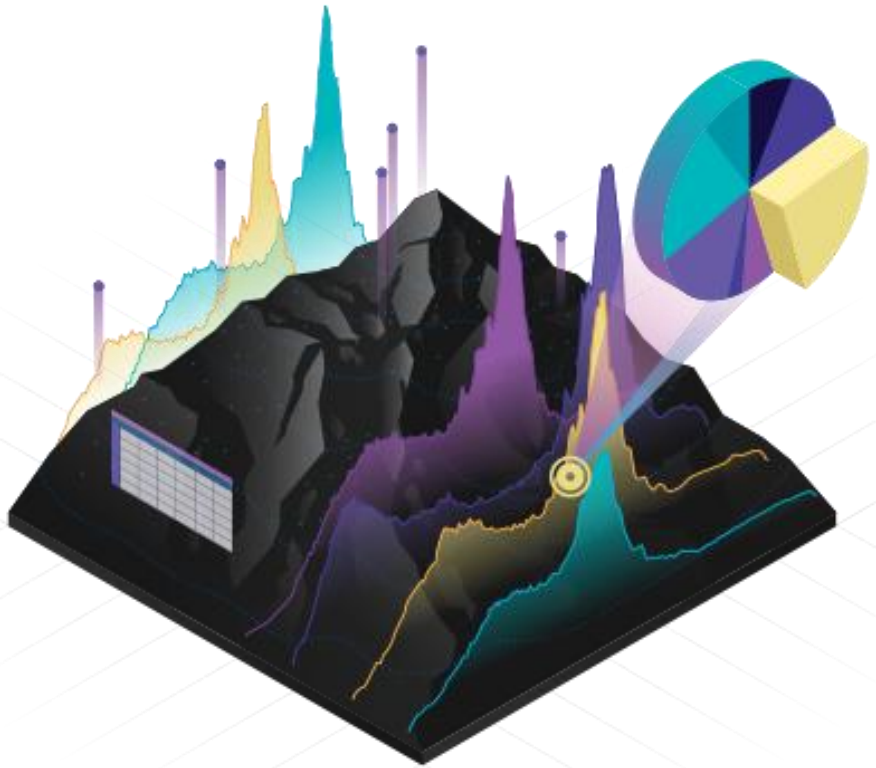



- Campbell, J. E., & Shin, M. (2011). Essentials of geographic information systems. https://www. saylor. org/books/.

# Introduction and About GIS

## ➢ What is GIS ?

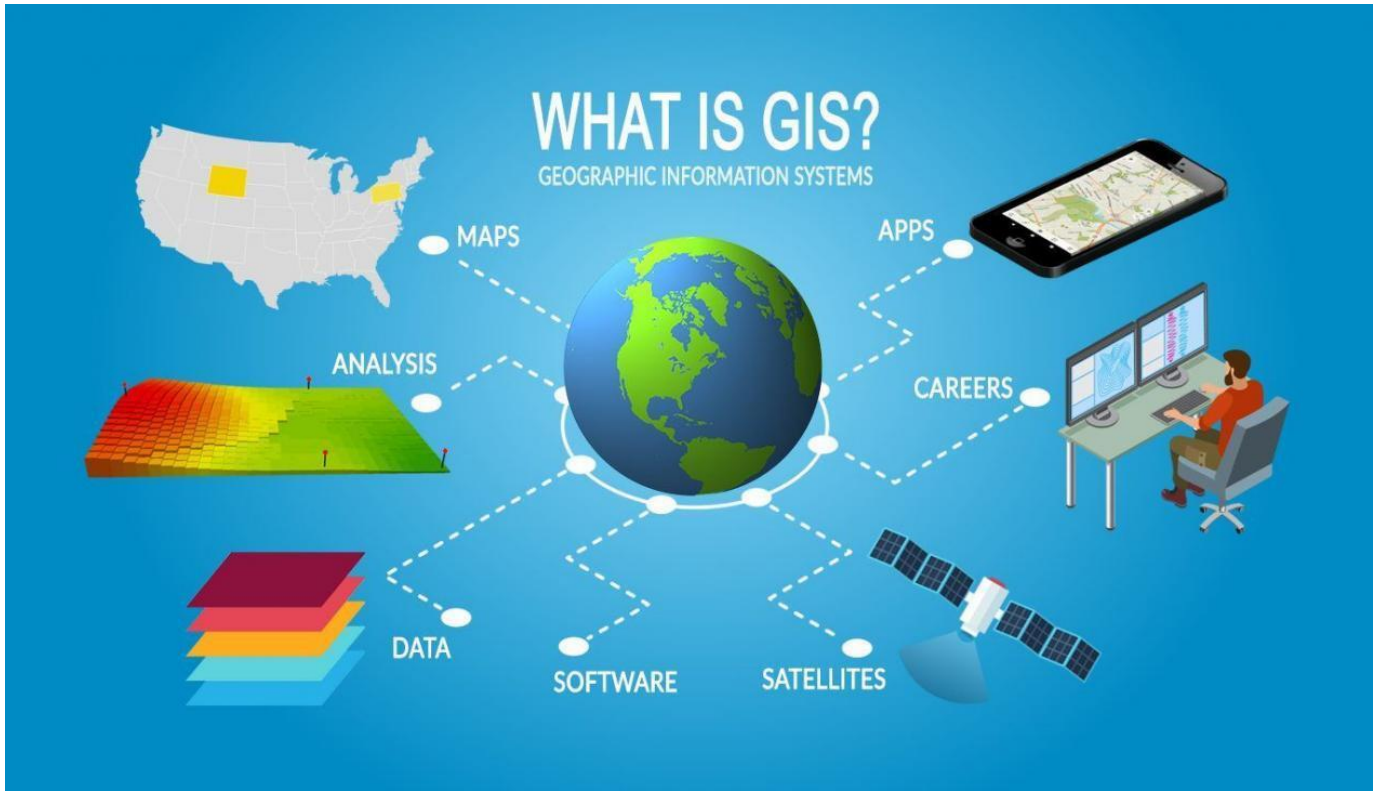
- A geographic information system (GIS) is a system that **creates, manages, analyzes, and maps all types of data.**
- **GIS connects data to a map**, integrating location data (where things are) with all types of descriptive information (what things are like there).
- This provides a **foundation for mapping and analysis** that is used in science and almost every industry.
- GIS helps users **understand patterns, relationships, and geographic context.**
- The benefits include improved communication and efficiency as well as **better management and decision making.**



# Definition and goals of this course

➢ **Goals:**

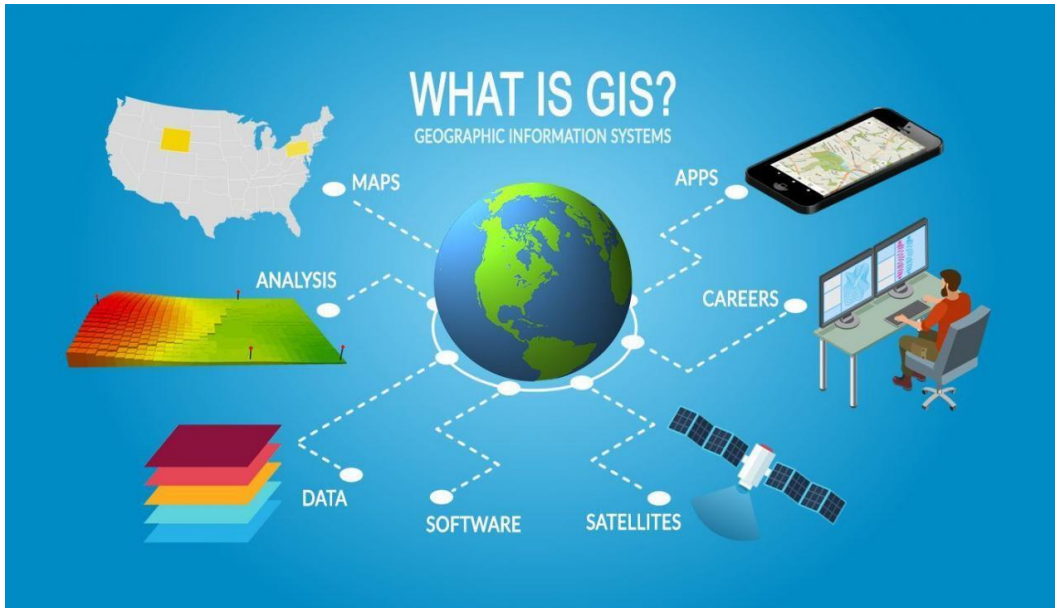
- What is GIS?
- Where is it used?
- GIS data structure
- Data display, query, and tools
- Jeoreferansing
- Working with the point, line, and polygon layers
- Properties of attribute tables and data entry
- Data selection from maps and attribute tables
- Symbology
- Layout features
- Labeling
- Digitization with topographic maps



# Definition and goals of this course

## ➢ Goals:

- Understand main concepts that define Geographic Information Systems.
- Identify GIS hardware components.
- Describe the geographic space with concepts and terms commonly used to build operating models in GIS.
- Identify typical operations, products/applications, and differences between database models and between raster and vector systems.
- Use GIS and its geo-processes and functions.
- Apply some basic techniques to thematic mapping design.



# Attending

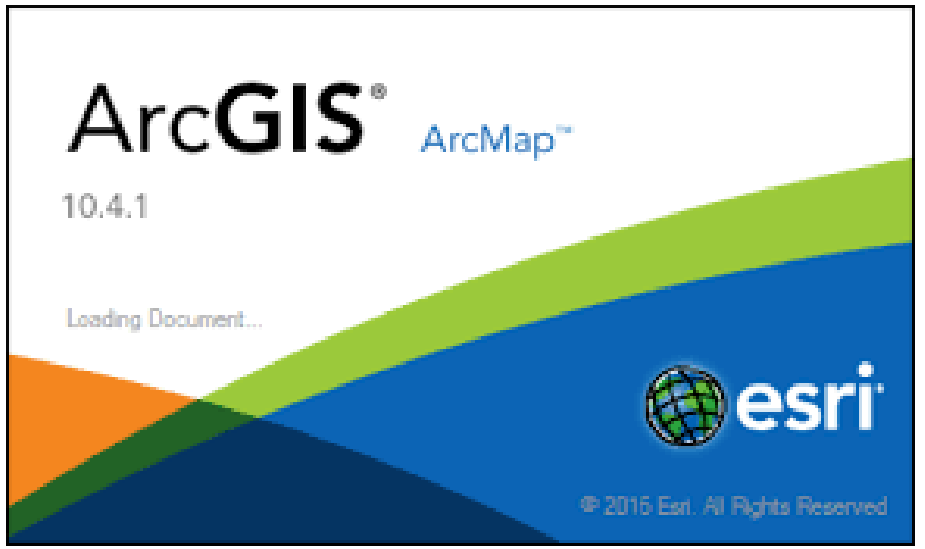
- ✓ Attending at all lectures meetings is required for successful completion of the class.
- ✓ **70% of attendance is required.**
- ✓ Percent of non-attendance below 70 will be dropped from your final grade.
- ✓ You are required to become familiar with the general concepts of the class topic.

# Grading

- ✓ Midterm exam 30 %
- ✓ Final exam 80 %
- ✓ Course success  quiz/homework etc.; attendance

# Class Materials

- ArcGIS 10.4.1
- ArcGIS 10.6
- Flash Drive USB 8 GB or 16 GB


# SYLLABUS

| Week | Topics | Date |
|---|---|---|
| | Introduction What is GIS? | 29.09.2023 |
| | Spatial Thinking, Geographic Concepts, About GIS | 6.10.2023 |
| | Map Anatomy Map Types Scale Coordinate Systems, and Map Projections | 13.10.2023 |
| | Data Models for GIS | 20.10.2023 |
| | The ArcGIS Platform: An Architecture Overview | 27.10.2023 |
| | Examination of Geographical Data i Arcmap Platform | 3.11.2023 |
| | Display of Raster a Vector Data | 10.11.2023 |
| | **Midterm Exam** | **13-19.11.2023** |
| | Creating Map Symbology | 24.11.2023 |
| | Querying a Reporting Geographical Data | 1.12.2023 |
| | Georeferencing | 8.12.2023 |
| | Creating and Editing Data I | 15.12.2023 |
| | Creating and Editing Data II | 22.12.2023 |
| | Creating Layout a Output Operations | 29.12.2023 |
| | **-15 January 2023 Final Exams** | **- 4.01.2024** |