



GEOM121: GIS Fundamentals

Introduction to the course

Dr. Ragab Khalil
Faculty of Environmental Design
King AbdulAziz University
Room 2008 (2nd floor)



Overview

- Course objectives
- Instructors
- Getting help
- Required skills – before you start
- Course structure
- Grading and evaluation
- Required media



Why learn about GIS?

- You want a job when you graduate
- GIS is the current standard for storage & analysis of environmental data
- Technological developments (GPS, LiDAR, Satellite imagery) make spatial data availability much more affordably and readily than in the past



Course objectives

4/21

- Understand the basic GIS theory, principles and applications
- Understand the principles of coordinates systems and map projection
- Understanding of GIS data sets and data creation methods
- Basic understanding and use of database functions
- Understanding of GIS analysis
- Ability to use GIS for solving problems
- Develop a basic understanding of cartography.

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Instructors

5/21

Dr. Ragab Khalil

- Associate professor at Faculty of Environmental Design
- Office: FED - Room # 2008.
- E-mail: khalilragab@yahoo.com
- Lectures & Lab. (FED - Room #):
 - Sunday (13:00 – 18:00),
- Office Hours:
 - Tuesday (13:00 – 15:00 AM).
- Course webpage:
 - rmohamed.kau.edu.sa

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Instructors

6/21

Eng. Ammar Mahmoud Mandourah

Lecturer at Geomatics Department
Faculty of Environmental Design
Office: FED - Room #.....

E-mail: amsmandourah@kau.edu.sa

Eng. Mohamed Abduljabar

Lecturer at Geomatics Department
Faculty of Environmental Design
Office: FED - Room #.....

E-mail: maaabduljabbar@kau.edu.sa

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Teaching Approach

7/21



Interactivity



- DUTIES**
- Clear and Simple Approach
 - Availability out of class hours
 - Give more and deeper explanations if needed

If you have **ANY** Question, Please **ASK**

Be Aware, there will be some **assignments** and **Bonus** on the taught material of the **previous lecture**

- DUTIES**
- Taking notes
 - Assiduity and Attendance
 - Understanding : 3 Qs
 - Why? How? What?**
 - Reading and Revision for previous Lecture

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Required skills

8/21

- Basic familiarity with word processor and Excel
- Comfortable with
 - *hierarchical file structures*
 - *Windows Explorer*
- Basic working knowledge of algebra, trigonometry, and coordinate geometry
- Basic familiarity with maps and map reading

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Course structure

9/21

- One lecture and one lab session (in the same day)
- Topics introduced in lecture are explored in lab session
- Periodic assignments (1 per week)
- Two Quizzes
- Midterm Exam (including Lab exam)
- Final exam (including Lab exam)

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Detailed schedule 1

10/21

week	date	Assign. Due	Subject	Lab Exercises
1	02 Sep		Course Introduction	
2	09 Sep		Introduction to GIS	Introduction to ArcGIS 10.4 (ArcGIS tutorial)
3	16 Sep		ArcMap Basics	Using ArcMap
4	23 Sep		Holiday	
5	30 Sep		1st Quiz Projections & Coordinate Systems	Projections and Coordinate Systems
6	07 Oct		Database Modeling	Database Modeling

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Detailed schedule 2

11/21

week	date	Assign. Due	Subject	Lab Exercises
7	14 Oct		Creating Feature Datasets	Digitizing and Editing with ArcGIS
8	21 Oct		ArcGIS work session	Digitizing (cont.)
9	28 Oct		Midterm	
10	04 Nov		Vector Analysis I	Vector Analysis I
11	11 Nov		Vector Analysis II	Vector Analysis II
12	18 Nov		2nd Quiz Raster Analysis I	Raster Analysis I

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Detailed schedule 3

12/21

week	date	Assign. Due	Subject	Lab Exercises
13	25 Nov		Raster Analysis II	Raster Analysis II
14	02 Dec		3D Analysis	3D Analysis
15	09 Dec		Final Exam	
16				

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Assignments

13/21

- ✓ 8 assignments through the semester
- ✓ Double-space all materials
- ✓ Assignments are due by next week of lab Exercise. Late assignments will not be accepted
- ✓ Grades are posted after each assignment is scored

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Grading and evaluation

14/21

Exam	Marks	Date		Place
1 st Quiz	5	20/01	30 Sep	
Midterm Exam	20	19/02	28 Oct	
2 nd Quiz	5	10/03	18 Nov	
Final Exam	35	02/04	09 Dec	
Lab Exercises	20	Due date	Due date	
Assignments	15	Due date	Due date	

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Media

15/21

Required:

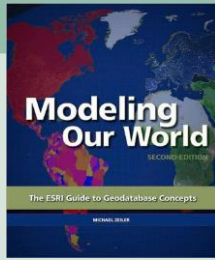
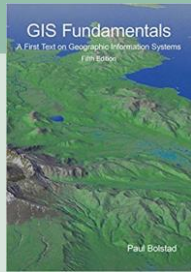
- Access to computers running ArcGIS 10.4
- Access to WWW
- 1 USB drive (8 GB) at least
- 2 CD's for Exams

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



References

16/21



- Bolstad, Paul V (2012). *GIS Fundamentals: A First Textbook on Geographic Information systems*, 4th edition, Eider press, 668p
- Michael Zeiler, *Modelling our world*, ESRI print, 2010.

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Learn More About GIS

17/21

There are many websites where you can learn more about GIS and other geospatial technologies, for example:

- <http://www.gis.com>
- <https://www.paulbolstad.net/5thedition/lab17.html>
- <http://www.library.yale.edu/MapColl/files/docs/>
- <http://edcommunity.esri.com/Resources/ArcLessons/Search>

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Class policies

18/21

- **Attendance:**
 - All students are required to attend all classes and laboratories.
 - Attendance will be taken during each class session.
 - Appropriate actions will be taken when students are absent for more than 25% of the course.
 - No Sleeping, Eating, Drinking or chewing in the class.
 - Good behavior in the classroom is expected from all students.
 - Students who engage in unacceptable behavior will be asked to leave the class.

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Class policies

19/21

- **Attendance:**
 - Turn off all cell phones and Other electronic devices before class.
 - During the lecture, feel free to ask questions, but refrain from conducting personal conversations.
 - When you leave the classroom, please pick up after yourself. Try to leave the room cleaner than when you found it.

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Class policies

20/21

- **Lab Exercises & Assignments:**
 - This course will include several laboratory exercises and homework assignments
 - Laboratory exercises will account for 20% of the final grade.
 - Assignments will account for 15% of the final grade.
 - It is important that students complete their assignments accurately, neatly, and submit them on time.
 - Late assignments will not be accepted

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Class policies

21/21

- **Examinations & Academic honesty :**
 - Class examinations will cover class and laboratory material, homework and Laboratory assignments, and assigned readings.
 - The College imposes specific actions in response to incidents of cheating and academic dishonesty.
 - These procedures will be followed and appropriate actions will be taken if these events were to occur.

Dr. Ragab Khalil KAU - FED – GEOM121: GIS



Lab

22/21

- Prepare your computer
- Check the software
- Make your own folder under
C:\temp\GEOM121***_Your name
 - *** is your class number
- E-mail account
- WhatsApp group
- How to determine your project location

Dr. Ragab Khalil KAU - FED – GEOM121: GIS
