



# LA473: Advanced GIS in LA

## Introduction to the course

**Dr. Ragab Khalil**  
Department of Landscape Architecture  
Faculty of Environmental Design  
King AbdulAziz University  
Room LIE15 (G floor)

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## Overview

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

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## Why learn about GIS?

- Your project will use GIS (Landscape planning, graduation project ...etc.)
- 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
- GIS is particularly well suited as a mapping and analytical tool to support natural resources management decision-making

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## Course objectives

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- Understand the basic GIS theory, principles and applications
- Understand the principles of coordinates systems and map projection
- Understanding of GIS data sets
- Recognize the role of remote sensing and apply image classification techniques.
- Understanding of GIS analysis
- Ability to use GIS for solving problems

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## Instructor

5/21

### Dr. Ragab Khalil

- Associate professor at Faculty of Environmental Design
- Office: FED - Room # 2008.
- E-mail: [khalilragab@yahoo.com](mailto:khalilragab@yahoo.com)
- Lectures & Lab. (FED - Room # LIE15):
  - Tuesday (09:00 – 13:00),
- Office Hours:
  - Tuesday (13:00 – 14:00 AM).
- Course webpage:
  - [rmohamed.kau.edu.sa](http://rmohamed.kau.edu.sa)

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## Teaching Approach

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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

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## Required skills

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- 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

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## Course structure

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

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## Detailed schedule 1

9/21

week	date	Assign. Due	Subject	Lab Exercises
1	04 Sep			
2	11 Sep		Course Introduction	How to start a GIS project
3	18 Sep		Introduction to GIS	Introduction to ArcGIS 10.4 (ArcGIS tutorial)
4	25 Sep	Ass.01	ArcMap Basics	Using ArcMap
5	02 Oct	Ass.02	1st Quiz Projections & Coordinate Systems	Projections and Coordinate Systems
6	09 Oct	Ass.03	Creating Feature Datasets	Digitizing and Editing with ArcGIS

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## Detailed schedule 2

10/21

week	date	Assign. Due	Subject	Lab Exercises
7	16 Oct		ArcGIS work session	Digitizing (cont.)
8	23 Oct		Midterm	
9	30 Oct	Ass.04	Remote Sensing and GIS	Image interpretation
10	06 Nov		Remote Sensing and GIS	Image classification
11	13 Nov	Ass.05	Work with tables	Creating and Modifying Tables
12	20 Nov	Ass.06	2nd Quiz Spatial Analysis I	Spatial Analysis I

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## Detailed schedule 3

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week	date	Assign. Due	Subject	Lab Exercises
13	27 Nov	Ass.07	Spatial Analysis II	Spatial Analysis II
14	04 Dec	Ass.08	Map Layouts	Map Layouts
15	11 Dec		Final Exam	
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## Assignments

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- ✓ 8 assignments through the semester
- ✓ You will save your answers as PDF's (.pdf files), compress (zip) them, and sent them to the given e-mail
- ✓ Double-space all materials
- ✓ Assignments are due of the date listed on the schedule. Late assignments will not be accepted
- ✓ Answer keys are posted after submission deadline
- ✓ Grades are posted after each assignment is scored

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## Grading and evaluation

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Exam	Marks	Date		Place
1 <sup>st</sup> Quiz	5	22/01	02 Oct	Remote Sensing Lab. Room LIE 15
Midterm Exam	20	14/02	23 Oct	
2 <sup>nd</sup> Quiz	5	12/03	20 Nov	
Final Exam	35	04/04	11 Dec	
Lab Exercises	20	Due date	Due date	
Assignments	15	Due date	Due date	

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## Media

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- Required:
  - Access to computers running ArcGIS 10.4
  - Access to WWW
  - 1 USB drive (16 GB) at least
  - 2 CD's for Exams

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## References

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- Xuan, Zhu, *GIS for Environmental Applications: A practical approach*, Routledge, NY,2016
- Michael Zeiler, *Modelling our world*, ESRI print, 2010.

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## Learn More About GIS

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

- <http://www.gis.com>
- <http://www.library.yale.edu/MapColl/files/docs/>
- <http://www.gisportal.com>
- <http://edcommunity.esri.com/Resources/ArcLessons/Search>

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## Class policies

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- **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.

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## Class policies

18/21

- **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.

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## Class policies

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### 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

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## Class policies

20/21

### 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.

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## Lab

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- Prepare your computer
- Check the software
- Make your own folder under  
C:\temp\GISF2019\_\*\*\*\_Your name
  - \*\*\* is your class number
- E-mail account
- WhatsApp group
- How to determine your project location

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