ILHAM-EC

Participatory workshop

Cairo, 29-30 November 2016

ILHAM-EC

Interuniversity Learning in Higher Education
on Advanced land Management

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Teaching Methods for Graduate Students in Alexandria University

UNIAL TEAM
29-30 November 2016 - Cairo

Introduction

- Most of graduate courses in Alexandria University are still taught by _traditional lecture style_

- Professors nowadays are becoming more aware that passive learning style need to be modernized.

- There are new innovations in teaching methods, with the rapid rise of the digital era, accompanied with phenomenal wealth of information available online

- The question that poses itself is "Can the university continue with the traditional lecture and not change to new methods?"

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Introduction

- About 90% of the professors in Alexandria University have transformed their lecture material into digital format using *PowerPoint software* and they give their lectures using the Datashows, which are now widely used in most class rooms.

- *Interactive boards* are also very useful and they are gradually entering the new teaching methods but they are still substantially expensive.

- It is also worth mentioning that *E-learning* is now available for very few classes.

Overview of Teaching Graduate Courses

- **The graduate courses are divided mainly into 2 parts**
  - ➢The first part is theoretical lectures
  - ➢The second part is practical labs, or practical computer applications

- **Handout material are given to the students at the beginning of the course (first lecture) indicating the general layout of the course, as well as the detailed layout of the lecture topics**

- **Most lectures are given using PowerPoint presentations, and the students are handed the lectures in PDF format**

- **Few courses have a webpage for communicating with students, and putting all the course material on that page**

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Example Handout

14306
Part 1: Geographic Information Science (GIS)
Instructor: Prof. Dr. Mohamed Bahnassy

Week	Topic
1	Introduction - Definitions of GIS - Components of GIS Data types (Vector – Raster - Attribute)
2	Vector Data Models (structures) Raster Data Models (structures)
3	Structures of Database Management Systems (DBMS) Classification of GIS analysis functions
4	Vector data analysis for points, lines and polygons
5	Spatial Interpolation DEM (Digital Elevation Model) Analysis
6	Raster data analysis

References

1- Wilson, J. P. and A. S. Fotheringham. 2008. The handbook of geographic information science. Blackwell Publishing Ltd. USA.

2- Longley, P.A, Goodchild, M.F., Maguire, D.J, and D.W. Rhind. 2005. Geographical Information systems and Science, 2nd edition. John Wiley and Sons. London.

3- Burrough, P.A., and R.A. McDonnell. 1998. Principles of Geographic Information Systems. Oxford University Press.

4- Aronoff, S. 1989. Geographic Information Systems: A management prespective. WDL Publications, Ottawa, Canada.

Practical for 14306: First Part - GIS
Geographic Information Science
Course Instructor: Prof. Dr. Mohamed Bahnassy

Week	Topic
1	General overview of the GIS software (ArcView) Getting familiar with ArcView GIS
2	Creating new data from Satellite images Vector data (Point theme – Line theme – Polygon theme)
3	Database Management Systems (DBMS)
4	Vector Analysis functions Performing analysis for Vector data
5	Overview of spatial interpolation techniques Generation of DEM from contour and point elevations DEM analysis for slope and aspect
6	Raster analysis functions Performing analysis for Raster data Generating Layouts (data output)

Example Handout

Layout for Lecture 1
14306
Geographic Information Science (GIS)
**Instructor: Prof. Dr. Mohamed Bahnassy**

Introduction ﺗﻤﻬﻴﺪ

- **History of Geographic Information systems (GIS)**
  - Arguments for computer cartography

- **Domains for GIS** استخدامات نظم المعلومات الجغرافية
Agriculture,	Archeology
Environment,	Epidemiology and health
Forestry,	Emergency services
Navigation,	Marketing
Real Estate,	Regional/Local planning
Road and rail,	Site evaluation and costing
Social studies,	Tourism,Utilities

- **Definitions of Geographic Information Systems (GIS)** تعريفات
  - Toolbox-based
  - Database-based
  - Organization-based

- **GIS Overview**
  - **Components of GIS** مكونات
    - Hardware (The computer and its peripherals)
    - Software (The GIS and the DBMS software)
    - Personnel (The persons who use the GIS)
  - **Systems of GIS** تحت النظم المكونة
    - Data input sub-system
      - Mouse, keyboard, scanner, digitizer
    - Data analysis sub-system
      - The GIS software
    - Data output sub-system
      - Hardcopy (printer……Plotter)
      - Softcopy (digital file on hard disk, CD, any Storage Media)
    - Database Management System (DBMS)
      - The database in GIS or third party software (Access, Oracle)
    - Graphical user interface

- **GIS Data Types** انواع البيانات الجغرافية
  - **Spatial Data** مكانية
    - Vector (point – line – polygon)
    - Raster (grid cell)
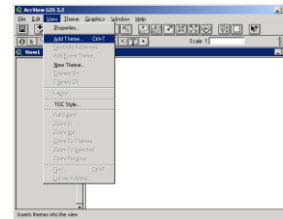 - **Non-Spatial** وصفية
    - Attribute

GIS Lab Exercise 1
**Introducing Arc View GIS**

A- Creating a new Project

1- Click on **ARCVIEW icon** to load the software.
2- Double Click on **VIEW icon** to open a new view (or click on New tab).
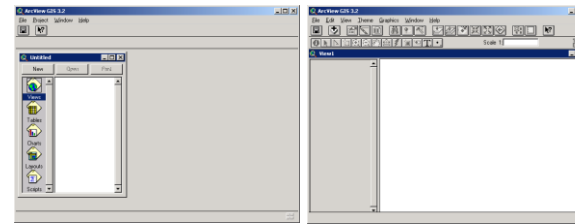
3- From the menu bar click on **View** then **Add Theme** and select drive **D:** and double click on the folder GIS_DATA to open it and select **pointmap.shp** then press **OK**.


4- In the Table Of Contents (TOC) click on the map name tab to turn it on and display it in the **View Extent**.
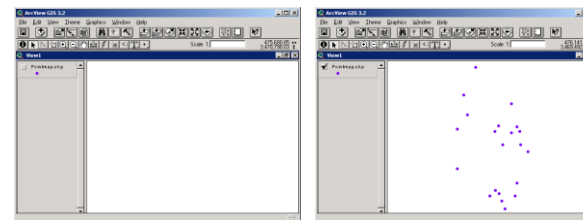
1- Repeat steps 3 and 4 to add a new map named **linemap.shp** and display it.
2- Repeat steps 3 and 4 to add a new map named **areamap.shp** and display it.
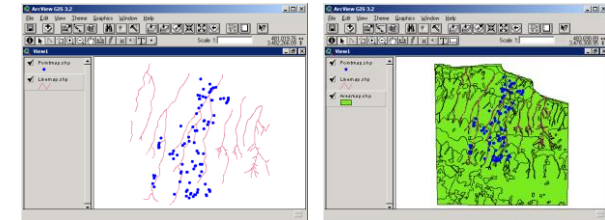
3- In order to open and save your maps and project to the folder D:\GIS_DATA\ click on **File** then **Set Working Directory** and type D:\GIS_DATA then press **OK**.
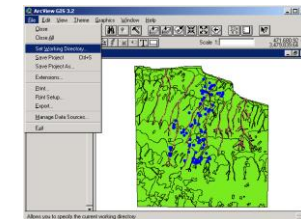
4- From the menu bar click on **File** then **Save Project** (or click on the save icon in the icon bar) then select drive d:\ then select folder GIS_DATA, the type the project name, then press **OK**.
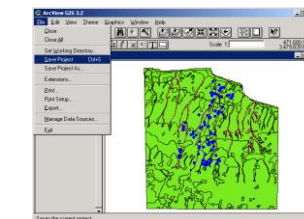
5- From the menu bar click on **File** then **Exit** to end your session.

Overview of Teaching Graduate Courses

- Students are required –depending on the professor- to submit reports, write an assay, or make a review of some topics covered in the course

- The students are required to take a mid term exam

- The form of the exam depends on the professor, it might be Q&A, MCQ, open-book, or even take home exam (very few cases)

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Overview of Teaching Graduate Courses

- **The students are required to take a final** *oral exam*

- **The students are required to take a final** *practical exam*

- **The students are required to take a final** *theoretical exam*

- **Final theoretical take home exams are not allowed due to the strict exam rules that prevent this from happening**

Marking

- The midterm theoretical exam 10 points
- The final theoretical exam is 60-70 points
- The final practical exam is 10-20 points
- The final oral exam is 10 points
- Class activities is 10 points (case studies, internet search, .. etc.)

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Grading

Marks	Points		Explanation
≥ 90	4.000	A	Very high graduate caliber
85 to < 90	3.666	A-	
80 to < 85	3.333	B+	
75 to < 80	3.000	B	Satisfactory performance
70 to < 75	2.666	B-	
65 to < 70	2.333	C+	
60 to < 65	2.000	C	
55 to < 60	1.666	C-	Performance of the student less than expected
50 to < 55	1.333	D+	
40 to < 50	1.000	D	Unsatisfactory performance
< 40	0.000	F	Fail

Grading

Marks	Points	Grade	
	---	W	Withdrawal
	---	FW	Forced Withdrawal
	---	I	Incomplete
	---	MW	Military Withdrawal
	---	L	Listener
	---	IP	In Progress
	---	S	Satisfactory
	---	U	Unsatisfactory

Calculating Grade Point Average (GPA)

- **Course grade points = course credit hours x Number of points**

- **Grade Point Average (GPA) for the semester**

$$GPA = \frac{course\ 1\ grade\ points + course\ 2\ grade\ points + \ldots + course\ n\ grade\ points}{Total\ semeter\ credit\ hours}$$

- **Cumulative Grade Point Average (CGPA) for the whole master period**

$$GPA = \frac{course\ 1\ grade\ points + course\ 2\ grade\ points + \ldots + course\ n\ grade\ points}{Total\ mater\ credit\ hours}$$

Example Calculating GPA

- A student is studying 3 courses as follows

- Course I 3 credit hours   marks 91   grade A   points 4

- Course II 2 credit hours   marks 88   grade A-   points 3.666

- Course III 1 credit hours   marks 82   grade B+   points 3.333

- GPA = 4X3 + 3.666X2 + 3.333X1

- GPA = (12 + 7.332 + 3.333) / 6

- GPA = 22.665 / 6

- GPA = 3.775

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