

GEOG2090 Introduction to Geographic Information Systems

Fulfill requirements of method-related courses

TIMETABLE ARRANGEMENT: Annual; 1st Semester

CREDITS: 6

COURSE TEACHER(S): Professor P C LAI

ASSESSMENT:

EXAMINATION 40 %	COURSEWORK 60 %
• 1.5 hours	• 5 individual practical exercises

OBJECTIVES:

To provide students a basic understanding of the concepts and techniques of GIS and their application to solve spatial problems that affect our society.

COURSE SYNOPSIS:

This course introduces students to the computer-assisted techniques of geographic data analysis, collectively known as GIS, which involve the overlaying and merging of spatial data layers. The principles of such an approach will be discussed focusing on the nature of the spatial data, raster and vector data structures, GPS data collection, data transformation and geocoding, and spatial overlay techniques. Students must complete five simple exercises involving the application of the GIS concept in a real-life situation. An examination requiring short-essay responses will be administered during the examination period. This course is a pre-requisite for follow-up courses in geographic information systems.

LECTURE TOPICS:

- Introduction to GIS and some definitions
- Data types and structures
- Basic database management functions
- GIS in action
- Beyond map data

RECOMMENDED READING LIST:

- Burrough, P.A., McDonnell, R., McDonnell, R.A., & Lloyd, C.D. (2015). Principles of geographical information systems. Oxford university press.
- Clarke, K. (2011). Getting Started with Geographic Information Systems. 5th Edition. Upper Saddle River, N.J.: Pearson Prentice Hall.
- Schmandt, M. (n.d.). GIS Commons: An Introductory Textbook on Geographic Information Systems. Online version: <https://giscommons.org/>

PRACTICALS:

- 5 laboratory practicals

	Course Learning Outcomes (CLOs) After completing this course, students would be able to:	Alignment with Programme Learning Outcomes (PLOs)*						Course Assessment Methods
		1	2	3	4	5	6	
1	understand some concepts in GIS and database management				✓			Practical exercises & exam
2	know some GIS functions and limitations			✓				Practical exercises & exam
3	recognise GIS requirements and application settings				✓			Practical exercises & exam
4	gain some GIS operational skills			✓			✓	Practical exercises & exam
5	acquire some database management skills						✓	Practical exercises & exam
6	apply map presentation skills				✓		✓	Practical exercises & exam

***Geography Major Programme Learning Outcomes (PLOs)**

In order to meet the demands and challenges in this dynamic and ever-changing world, the Department has designed a series of well-structured and contemporary courses to cater to the different interests of students. Its courses are designed to align with the University's educational aims which hope to nurture future generations not only with a critical and intellectual mindset, but also with a passion to contribute to society in general.

After completing the programme, Geography Major students should be able to:

PLO1 critically analyse the geographical aspects of the relationship between people and the natural environment;

PLO2 demonstrate and develop an understanding of how these relationships have changed with space and over time;

PLO3 identify, collect and utilize primary and secondary data to investigate and analyse the issues and problems facing people, places and society;

PLO4 integrate, evaluate and communicate information from a variety of geographical and other sources;

PLO5 participate in promoting social, economic and environmental sustainability at the local, regional and global scales; and

PLO6 effectively apply a range of transferable skills in academic, professional and social settings.