

Semester:	05		
Course Code:	ZOOL 41762		
Course Name:	Geo-informatics for Zoological Studies		
Credit Value:	02		
Status:	Compulsory		
Pre-requisite:	ZOOL 22732 & ZOOL 22752		
Co-requisite:	None		
Hourly Breakdown:	Theory	Practical	Independent Learning
	15	45	40

Intended Learning Outcomes:

After completion of this course unit, the student will be able to:

1. describe definitions, components and spatial data models in GIS,
2. explain spatial data sources, data acquisition, and storage methods in GIS,
3. apply knowledge on buffering, overlaying, image classification and interpolation, and
4. use GIS as a tool in mapping species distribution and modeling habitat suitability.

Course Content:

Introduction: Definition, history, components of Geographical Information Systems (GIS). Spatial data. Mapping concepts, features and properties. Data types. Vector and raster data models and data conversion. Input data: Census and survey data, aerial photographs, satellite images, field data sources, use of Global Positioning Systems (GPS). Data capture. Verification. Storage. Output. Editing. Presentation. Updating and storage. Data analysis. Measurements in GIS. Classification of images. Proximity analysis. Integrating data into GIS: map overlay, spatial interpolation and spatial models in ecosystems.

Laboratory sessions using a GIS software: Exploring the GIS software. Preparation of layer maps. Updating the geodatabase. Data analysis: Buffering, interpolation, weighted overlay, image classification. Modelling habitat suitability for faunal species using available data. Mapping species distributions. Use of GIS, remote sensing and GPS for planning and development activities.

Teaching /Learning Methods:

A combination of lectures, practical sessions, computer-based learning, assignments, case studies and group discussions.

Assessment Strategy:

Continuous assessment and end of semester examination. Percentage given for each sub-component indicates the percent contribution to the final marks.

Continuous Assessment 30 %		Final Assessment 70 %		
Details:		Theory	Practical	Other
Assignments	10 %	50 %	20 %	-
Case study	20 %			

Recommended Readings:

1. Burrough, P. A. & R. A. McDonnell (2011). Principles of Geographical Information Systems; Spatial Information Systems and Geostatistics. 2nd edition. Oxford University Press. UK.
2. Fu, P. (2010). Web GIS: Principles & Applications. ESRI press, USA.

3. Gorr, W. L. (2013). GIS tutorial 1; Basic workbook, 10.1 Edition. ESRI press, USA.
4. Heywood, I., S. Cornelius & S. Carver (2013). An Introduction to Geographical Information Systems. 4th edition. Pearson, UK.
5. Recently published relevant scholarly reviews and research paper articles from peer reviewed scientific journals.