## KentVision Code and title of the module

SACO8015 Geographic Information Systems (GIS)

## Division and School/Department or partner institution which will be responsible for management of the module

Division of Human and Social Sciences, School of Anthropology and Conservation

## The level of the module (Level 4, Level 5, Level 6 or Level 7)

Level 7

## The number of credits and the ECTS value which the module represents

15 (7.5 ECTS)

## Which term(s) the module is to be taught in (or other teaching pattern)

Autumn or Spring

## Prerequisite and co-requisite modules and/or any module restrictions

Cannot be taken with DICE8490

## The course(s) of study to which the module contributes

***Optional to the following courses:***

* MSc in Environmental Leadership;
* MSc Conservation [all pathways]
* MSc Ethnobotany,
* MA Social Anthropology: Humanitarian and Environmental Crises
* MA Peace and Conflict Studies
* MA International Relations
* MA Security and Terrorism
* MSc Development Economics
* MSc Economics

Also available as an elective module

## The intended subject specific learning outcomes. On successfully completing the module students will be able to:

8.1 Have a systematic understanding of knowledge of the principles of GIS and a clear understanding of the application of GIS using real world examples

8.2 Be able to acquire, combine and manipulate data from multiple sources in a GIS in order to deal and solve practical problems in different disciplines across social sciences, natural science and humanities

8.3 Have a comprehensive understanding of the principals underlying the analysis of spatial data and remote sensing data and be able to produce appropriate maps

8.4 Have acquired practical technical skills on GIS analytical techniques

8.5 Be able to generate and critically evaluate GIS and remote sensing outcomes and write reports on GIS mapping and analysis.

## The intended generic learning outcomes. On successfully completing the module students will be able to:

9.1 Confidently use IT skills in the context of the use of a GIS software

9.2 Combine different methods and techniques to produce effective research designs and analysis

9.3 Produce comprehensive and fluent analysis of relevant topics.

## A synopsis of the curriculum

This module introduces Geographic Information Systems (GIS) and considers its application across a range of disciplines. Through a combination of lectures and computer practicals, this module provides a theoretical background and practical application of skills in collection, management, visualisation, analysis and interpretation of spatial data.

GIS are increasingly being used in many different disciplines (e.g., Geography, Environmental studies, Conservation, Politics, International relations, Psychology, Economics, Business, Anthropology, Archaeology, Sociology, Urban Studies, Architecture, Engineering Sciences), to help solve a wide range of “real world” environmental, economic and social problems. Examples of GIS applications to solve environmental problems include analysis of land-use and landcover changes, monitoring spatial patterns of species distributions and population dynamics, conservation planning, climate change, hydrological modelling, natural resource management). GIS can also help to map and analyse economic data with a spatial component and to assist agricultural, environmental and resource economists to consider spatial complexities within their analyses. Applications of GIS in social sciences include, public health, criminology, education, poverty/income inequalities, geopolitics, conflict analysis, voting patterns and behaviours, urban and rural planning, transport planning, emergency planning, real-estate, retail analysis, history, geo-demographics, data-driven public policy). As research and practice moves towards the acquisition, manipulation and analysis of large datasets with explicit geographic reference, employers increasingly require GIS skills to handle spatial data. This module provides enhanced employability skills relevant to research and commercial needs.

Indicative topics:

* Introduction to the fundamental principles of GIS
* Introduction to remote sensing (i.e. use of air-photos and satellite images to generate maps)
* Principles of cartography, coordinate systems and projections
* Data sources and methods of data acquisition
* Types of spatial data, working with raster and vector data
* Mapping (how to create and transform maps),
* Elementary database management and spatial query
* Overview of a GIS software (e.g. ArcGIS Pro)
* GIS operations (e.g. Calculating area, Intersection of polygons, buffers, digitising etc.)
* Spatial analysis in GIS

The module is designed for beginner students who do not have any previous knowledge of geography, mapping or spatial analysis and it does not require mathematical or statistical skills.

## Reading list

The University is committed to ensuring that core reading materials are in accessible electronic format in line with the Kent Inclusive Practices.

The most up to date reading list for each module can be found on the university's [reading list pages](https://kent.rl.talis.com/index.html).

## Contact Hours

Private Study: 126

Contact Hours: 24

Total: 150

## Assessment methods

* 1. Main assessment methods
* Group presentation based on solving a particular spatial problem, 30%
* Individual report including a substantial GIS analysis, related to a spatial research project 1,500 words (70%).

13.2 Reassessment methods

Reassessment Instrument: 100% coursework

## Map of module learning outcomes (sections 8 & 9) to learning and teaching methods and methods of assessment (section 13)

**Module learning outcomes against learning and teaching methods:**

| **Module learning outcome** | **8.1** | **8.2** | **8.3** | **8.4** | **8.5** | **9.1** | **9.2** | **9.3** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private Study | x | x | x | x | x | x | x | x |
| Lectures | x | x | x |  | x |  | x |  |
| Computer practicals |  | x |  | x | x | x | x | x |

**Module learning outcomes against assessment methods:**

| **Module learning outcome** | **8.1** | **8.2** | **8.3** | **8.4** | **8.5** | **9.1** | **9.2** | **9.3** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Group Presentation | x | x | x | x | x | x | x | x |
| Individual Report | x | x | x | x | x | x | x | x |

## Inclusive module design

The Division recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

## Campus(es) or centre(s) where module will be delivered

Canterbury

## Internationalisation

The module will serve as an optional module to a number of MSc and MA programmes to enable students apply the skills of GIS to map and spatially analyse social and environmental data around the world. These skills are internationally transferable and so students will be equipped with the tools to conduct GIS mapping in whichever country they choose to work.

**DIVISIONAL USE ONLY**

**Module record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

| Date approved | New/Major/Minor revision | Start date of delivery of (revised) version | Section revised (if applicable) | Impacts PLOs (Q6 & 7 cover sheet) |
| --- | --- | --- | --- | --- |
| 17.11.22 | New | September 2023 |  |  |
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