# KentVision Code and title of the module

SACO7018 Geographic Information Systems (GIS)

# Division and School/Department or partner institution responsible for the module

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

# The level of the module

Level 7

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

20 credits (10 ECTS)

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

Autumn or Spring

# Delivery of the module

* 1. **Mode of study**

In person

* 1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

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

# None

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

* 1. **The module is compulsory for the following courses**

None

* 1. **The module is optional for the following courses**

MSc Conservation Science [all pathways]

MSc Ethnobotany

MA Social Anthropology: Humanitarian and Environmental Crises

MA Peace and Conflict Studies

MA International Relations

MA Security and Terrorism

* 1. **Also available as an elective module.**

# 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.

# Contact Hours

Private Study: 175

Contact Hours:25

Total: 200

# Learning and teaching methods

# Teaching methods include a mixture of lectures and computer practicals in a time-flexible format. Parts of the module will involve small group work and analyses of real-world spatial data and presentation of the results in the class for case studies

# The intended subject specific learning outcomes

On successfully completing the module students will be able to:

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

12.2 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

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

12.4 Have acquired practical technical skills on GIS analytical techniques

12.5 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:

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

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

13.3 Produce comprehensive and fluent analysis of relevant topics.

# Assessment Strategy

* 1. **Main assessment methods**
* Practical report including outputs of GIS analysis and a 500 words interpretation of the results (10%)
* 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 (60%).
  1. **How the assessment methods outlined above fit with the course assessment strategy?**

All assignments included in this module are designed to capture aspects of real-world problems and help develop technical and employability skills. Performing GIS analysis is the core component in all three assignments and requires students to apply methods and techniques they have learnt in the computer classes. The quality of interpretation of the results of the GIS analysis is assessed in a written (report) or verbal (presentation) format. Group work provides students a real-life experience of analysing and interpreting complex spatial problems and encourages peer learning. The focus of all assignments transcend disciplinary boundaries and thus align with the assessment strategies of all courses listed in section 8.2

* 1. **Reassessment methods**

100% coursework

# Mapping of Learning Outcomes

Map of module learning outcomes (sections 12 & 13) to learning and teaching methods (section 11) and methods of assessment (section 14).

* 1. **Module learning outcomes against learning and teaching methods**

| **Module learning outcome** | 12.1 | 12.2 | 12.3 | 12.4 | 12.5 | 13.1 | 13.2 | 13.3 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private Study | x | x | x | x | x | x | x | x |
| Lectures | x | x | x |  | x |  | x |  |
| Computer Practicals |  | x |  | x | x | x | x | x |

* 1. **Module learning outcomes against assessment methods**

| **Module learning outcome** | 12.1 | 12.2 | 12.3 | 12.4 | 12.5 | 13.1 | 13.2 | 13.3 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Practical Report | x | x |  |  | x | x |  | x |
| Group Presentation | x | x | x | x | x | x | x | x |
| Individual Report | x | x | x | x | x | x | x | x |

# 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).

# 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

**MODULE RECORD**

**All revisions for this module are recorded in the table below for student and staff information.**

| **Date approved** | **New/ Material/ Major/ Minor revision** | **Start date of delivery of this version** | **Applies to new cohorts and/ or existing students** | **Sections revised (if applicable)** |
| --- | --- | --- | --- | --- |
| 18.08.23 | Major | Sept 24 | New | 1 (code), 4, 8.2, 10 (was SACO7018) |
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