

BSc Geography

THE STRUCTURE OF THE PROGRAMME

FIRST YEAR

CORE COURSE UNITS (indicate as appropriate in accordance with the degree regulations)			
COURSE CODE	COURSE TITLE	CREDITS	NOTES: P = Prerequisite & C = Co- requisite
GEOG15001	Environmental Processes and Change	20	
GEOG15011	Human Geographies: thinking spatially in turbulent times	20	
GEOG15041	Tutorials: A Users Guide to University	20	
GEOG15032	Global Environmental Challenges	20	
GEOG15022	Data Science for Geographers	20	
OPTIONAL COURSE UNITS (course unit details given below are subject to change, and are the latest example of the curriculum available on this course of study).			
GEOG15052	The Place of Manchester	20	

CORE & OPTIONAL COURSE UNITS IN YOUR SECOND YEAR

(please note that course unit details given below are subject to change, and are the latest example of the curriculum available on this course of study).

SECOND YEAR

CORE UNIT (indicate as appropriate in accordance with the degree regulations)			
COURSE CODE	COURSE TITLE	CREDITS	NOTES: P = Prerequisite & C = Co- requisite
GEOG25001	Geography: Past, Present and Future	20	
GEOG20822	Doing Geographical Research	20	
GEOG25022	Doing Geographical Fieldwork	20	
OPTIONAL COURSE UNITS (course unit details given below are subject to change, and are the latest example of the curriculum available on this course of study).			
GEOG26011	Social and Cultural Geographies	20	
GEOG20101	Economic Geography	20	
GEOG20411	Fundamentals in Sustainability	20	
GEOG20501	Spatial Thinking with GIS	20	
GEOG21511	Geomorphology	20	
GEOG20771	Biogeography	20	
GEOG21432	Moral Geographies	20	
GEOG20132	Global Urban Futures	20	

GEOG25022	Past Climate Change	20	
GEOG20402	Hydrology and Catchment Systems	20	

CORE & OPTIONAL COURSE UNITS IN YOUR FINAL YEAR

(please note that course unit details given below are subject to change, and are the latest example of the curriculum available on this course of study).

FINAL YEAR

CORE UNITS (indicate as appropriate in accordance with the degree regulations)			
COURSE CODE	COURSE TITLE	CREDITS	NOTES: P = Prerequisite & C = Co- requisite
GEOG30000	Dissertation	40	
OPTIONAL COURSE UNITS (course unit details given below are subject to change, and are the latest example of the curriculum available on this course of study).			
GEOG31021	Feminist Geographies of Health	20	
GEOG32031	Migration, Conflict and Social Change	20	
GEOG31071	Asian Workers	20	
GEOG30101	Energy, Society and Space	20	
GEOG35001	Climate Change: Science and Society	20	
GEOG30551	Understanding GIS	20	
GEOG30231	Peatlands	20	
GEOG32011	Pyrogeography: Fire in the Earth System	20	
GEOG31012	Decolonising Geography	20	
GEOG30702	Wildlife in the Anthropocene	20	
GEOG30802	Governing Urban Transformation	20	
GEOG31212	Nature, Society and Social Power	20	
GEOG32062	Digital Technologies and the City	20	
GEOG30132	Mediterranean Quaternary Environments	20	
GEOG30152	Landscape Ecology	20	
GEOG30172	Geographical Controversies	20	

Title	Environmental Processes and Change: The Global System
Unit code	GEOG 15001
Credit rating	20
FHEQ Level (delete as appropriate)	Level 4
Core/Compulsory/Optional/ Free Choice	Core
Teaching Period	Semester 1

AIMS and SYLLABUS

The unit aims to:

- Support students to explore ideas around Earth System Science
- Encourage students to consider a global physical geography, and the key interactions between the atmosphere, lithosphere, biosphere, hydrosphere and cryosphere
- Foster in students an understanding of environmental processes and change at the global scale
- Encourage students to explore the drivers of global environmental change over a range of timescales

Syllabus:

The Earth System and Earth System Science

Global climate system

Volcanoes and climate

Weathering and material fluxes

Biomes and climate

Global biodiversity

The Cryosphere

The Ice Ages

BRIEF DESCRIPTION OF THE UNIT

How do tectonic processes influence global climate? Why should we consider river processes at the global scale? How does vegetation influence global climate? What caused the ice ages? Why are these questions important? These are just some of the questions we will consider in this course. This unit presents a global perspective on physical geography and examines the key interactions between the atmosphere, lithosphere, hydrosphere, biosphere and cryosphere. We will ask big questions and consider big ideas.

INTENDED LEARNING OUTCOMES

- Describe and exemplify the composition and processes operating in the atmosphere, lithosphere, hydrosphere, biosphere and cryosphere and the key interactions between them.
- Conceptualise environmental processes at a range of spatial scales (e.g. from the local to the global scale)
- Conceptualise environmental processes operating on a range of timescales
- Critically appraise scientific and non-scientific literature
- Communicate geographical ideas, principles and theories accurately by both written and graphical means.

LEARNING AND TEACHING METHODS

The course is primarily lecture based but will include opportunities for class discussion and other group activities. Introductory context, lecture notes, suggested reading and other electronic resources will be provided each week via the unit Canvas pages, to consolidate your learning and help you to make the links between the key themes. Students will be expected to complete assigned reading between classes, and a high level of attendance is expected to ensure that you are well supported for the assessment.

EXPECTED OUTCOMES

At the end of the course unit, students will have strengthened their core physical geography knowledge and will have developed an advanced understanding of processes operating in the atmosphere, lithosphere, hydrosphere, biosphere and cryosphere and the key interactions between them. The course unit provides a solid foundation for opportunities for further study through 2nd and 3rd year optional modules, as well as the dissertation.

Students will gain intellectual skills, being able to conceptualise key environmental processes, explaining the causes of change in environments at a range of spatial and temporal scales.

Students will gain valuable transferable skills, including experience at engaging with literature, and developing skills in evaluation, making informed judgements and critical thinking.

ENHANCEMENT OF DIGITAL LITERACY

Students will be encouraged to engage with a range of digital information sources (e.g. online journal articles, books and non-academic literature) as part of their independent study. The online Canvas pages supports learning and provides digital resources to supplement lectures and reading.

Wider support for digital literacy, for example via MyLearning Essentials and eLearning support, are signposted from the unit Canvas pages.

ASSESSMENT STRATEGY

Formative Assessment

Formative Assessment Task	Length (word count/time)
Mid-semester multi-choice quiz delivered via Canvas.	20 minutes
Mock short answer questions delivered in the revision session.	30 minutes

Summative Assessment

Summative Assessment Task	Length (word count/time)
End of semester exam	2 hours

STATEMENT TO SUPPORT EQUALITY, DIVERSITY AND INCLUSION

The teaching team will provide a diverse reading list to support the core scientific understanding of environmental processes. The reading list draws from a wide authorship including those from historically under-represented groups (e.g. women and authors from the Majority World).

Lecture materials will be made available in advance of the class. All lectures will be podcast and a guided reading list, with essential reading and recommended further reading, will be provided each week.

INDICATIVE READING LIST

A guided reading list will be provided each week. The essential reading is required, whilst recommended reading will help to further develop understanding of the lecture materials. You will need to read widely to do well in the assessment.

Title	Human Geographies: Thinking spatially in turbulent times
Unit code	GEOG15011
Credit rating	20
FHEQ Level (delete as appropriate)	Level 4
Core/Compulsory/Optional/ Free Choice	Core
Teaching Period	Semester1

AIMS and SYLLABUS

The unit aims to:

- provide an overview of key concepts in human geography;
- support students in linking these key concepts to real world examples;
- introduce the varied relationships between people, place and space, and the approaches geographers have used to examine these relationships;
- support students to develop an understanding of the diversity and interdependency of spatial processes;
- provide an opportunity for students to develop core academic and transferable skills.

Syllabus:

The aims of the unit will be explored through analysis of a variety of topics, including (but not limited to):

Globalisation; geopolitics; urban processes; spaces of inequality; gender and identity; migration and citizenship; cities and place; technology; development; culture and power

BRIEF DESCRIPTION OF THE UNIT

Human Geographies: thinking spatially in turbulent times, introduces students to the ways human lives, societies and economies are shaped by – and help to shape – space and place. The course explores how everyday experiences are connected to wider processes, and encourages students to think critically about how power, economy, culture and identity are organised geographically. Students will be introduced to key concepts and approaches used by human geographers to make sense of contemporary challenges, from economic change and political conflict, to urban change and inequalities. The course emphasises how places are interconnected at a range of scales, and how these interconnections produce a diversity of places, including uneven outcomes for different people, societies and regions.

INTENDED LEARNING OUTCOMES

Students should be able to:

- describe core human geography concepts
- describe and exemplify the human impact on space and place
- analyse real-world situations using human geography approaches
- reflect on and appraise the reasons for the diversity and interdependency of places
- reflect on the nature of human geography as a field of study and the tools required to engage in geographical practices
- express geographical ideas, principles and theories in writing

LEARNING AND TEACHING METHODS

Learning style:

This course unit is primarily lecture-based, but will include opportunities for student interaction during classes.

Course materials/Canvas:

EXPECTED OUTCOMES

Students will develop a deeper understanding of core human geography concepts, and how to apply these to real-world issues. In doing so, students will develop their skills in problem-solving and critical thinking.

Students will use digital tools to search, access and summarise academic and non-academic sources, enhancing their digital and media literacy, and developing their independent thinking skills.

Through discussion activities, students will be encouraged to critically reflect on a range of views and opinions on geographical issues, enhancing their evaluation skills to arrive at informed and reasoned conclusions.

Students will develop skills in constructing coherent written arguments under time-limited conditions.

Students will be encouraged to reflect on their personal strengths and areas for development, enhancing their skills as an independent learner.

Students will reflect on their responsibilities as a global citizen.

Overall, this unit will provide students with a foundation for further study in human geography in subsequent years in the programme.

ENHANCEMENT OF DIGITAL LITERACY

Drawing on a variety of sources, the course unit will support the development of skills in information, data and media literacy when analysing real-world problems.

The online Canvas page supports learning and provides digital resources to supplement lectures and reading.

Wider support for digital literacy, for example via MyLearning Essentials and eLearning support, are signposted from the unit Canvas pages.

ASSESSMENT STRATEGY

Formative Assessment

Formative Assessment Task	Length (word count/time)
Mid-semester multiple-choice quiz delivered via Canvas.	20 mins
Mock short-answer questions delivered in class	30 mins

Summative Assessment

Summative Assessment Task	Length (word count/time)
Exam	2 hours

STATEMENT TO SUPPORT EQUALITY, DIVERSITY AND INCLUSION

The course unit draws on various examples and resources from a variety of geographical contexts. In addition the recommended reading includes authors who have traditionally been under-represented (e.g. female authors and those from the Majority World).

Lecture materials will be made available in advance of the class. All lectures will be podcast and a guided reading list will be provided each week.

INDICATIVE READING LIST

Textbooks:

Dombroski, K., Goodwin, M., Qian, J., Williams, A. and Cloke, P., (2024). *Introducing Human Geographies*. Routledge.

Lee, R., Lawson, V., Kitchin, R. and Castree, N., 2014. *The SAGE handbook of human geography*.

Journals including:

Progress in Human Geography
Dialogues in Human Geography

Title	Tutorials and Critical Book Review
Unit code	GEOG15041
Credit rating	20
FHEQ Level (delete as appropriate)	Level 4
Core/Compulsory/Optional/ Free Choice	Core
Teaching Period	Semester 1

AIMS and SYLLABUS

The unit aims to:

- Introduce students to university study and independent learning.
- Provide an opportunity for students to develop their assessment literacy and support their transition to university study.
- Support students in essay writing, referencing and good academic practice
- Develop critical thinking through evaluating contrasting theories, evidence and perspectives
- Offer opportunities for students to consider careers and develop transferable employability skills
- Provide opportunities for collaboration and working effectively in groups
- Develop digital literacy skills in relation to the sourcing, handling, evaluation and interpretation of geographical information
- Support students to develop oracy and the confidence to articulate ideas in a group setting

BRIEF DESCRIPTION OF THE UNIT

The Tutorials programme is an introduction to independent university study, delivering the key skills required to succeed at the undergraduate level in the Department of Geography. The unit will support and complement the other core modules in Semester 1 via a range of assessments and formative activities, including exam practice. Tutorials will introduce you to key university skills, including essay writing, referencing, good academic practice, avoiding plagiarism and appropriate use of generative AI. They will also develop your assessment literacy and highlight the expectations of university study. In a data-saturated world, this unit will also develop critical digital skills, enabling you to evaluate contrasting theories, evidence and positionalities. Furthermore, the small-group setting of tutorials and the diversity of tasks will provide opportunities to develop oracy, group work, and other key transferable skills related to employability.

INTENDED LEARNING OUTCOMES

Students should be able to:

Describe and exemplify the nature of change in time and space, and the interactions and relationships between societies and environments.

Summarise and evaluate core physical and human geography concepts through both oral and written work.

Demonstrate critical thinking, through evaluating competing theories evidence and perspectives.

Use digital technology to effectively and appropriately search, select, analyse, present and communicate geographical information.

Demonstrate the use of a range of key university skills including essay writing and referencing

LEARNING AND TEACHING METHODS

The tutorials unit will consist of weekly, two-hour small group sessions of approximately 10 students, led by a Tutor. These Tutors will also have the role of Academic Advisor for students beyond Semester 1. Tutorials will include a range of activities linked to key academic skills. To encourage engagement, most activities will be directly related to the summative unit assessments. The unit will also have a range of additional one-hour thematic workshops and classes related to key digital and employability skills.

Course and assignment information will be made available on Canvas or from your Tutor. All essays will be submitted via Canvas.

EXPECTED OUTCOMES

By the end of the course unit, students will have developed a number of core study skills setting them up for their university degree and beyond. They will have developed their assessment literacy and will have successfully transitioned to university level study with greater awareness of its expectations.

Tutorials will enable them to consolidate and deepen their knowledge and understanding of core Human and Physical Geography concepts.

They will also have developed core study skills related to referencing, good academic practice and avoiding plagiarism, including critical use of generative AI, critical thinking, and visualising data. In addition, students will have developed their exam revision techniques, learning how to take notes effectively and consolidate/distil their notes.

Furthermore, they will have also strengthened a range of practical and transferable skills, such as motivation/self-directed learning. They will have reflected on the process of learning evaluated their personal strengths and weaknesses and demonstrated an understanding of alternative learning strategies. They will have become more confident about their contributions to tutorial discussions and will have developed written, visual and oral presentation skills. They will have developed their ability to work in a team, completing assigned tasks, some taking leadership roles, but all taking part in group discussion and supporting the participation of others within a group setting.

They will have considered future careers, been introduced to the Careers Service and completed a future careers skills audit.

ENHANCEMENT OF DIGITAL LITERACY

Students will be encouraged to develop their digital literacy in a number of ways, for example by critically engaging with a range of digital search engines (e.g. Scopus, Web of Science, Google Scholar) – that is, acknowledging that search engine algorithms are not neutral.

Students will also be encouraged to think critically and to reflect on how controversial or contentious issues are discussed in the digital realm, and to ask questions about what a reliable source might be.

Students will gain confidence in using digital technologies to effectively present and communicate geographical ideas, concepts and information.

Students will be encouraged to communicate effectively through ICT and digital media. Effective contributions to digital discussion boards will be demonstrated and the appropriate use of email (including maintaining privacy) will be covered, including the coverage of the different norms of communication in different digital media.

Students will develop their understanding of digital identity and wellbeing. There will be discussions in tutorials, and with the Careers Service, around building and projecting a positive digital identity. This will necessitate further discussions around digital wellbeing, encouraging students to look after their personal health, safety and relationships online, and maintain a healthy work-life balance in their digital communications. As a discipline, geography demands that we consider the environmental impacts of digital participation, and also encourage students to consider the impacts of digital technologies on their financial, physical and mental health.

ASSESSMENT STRATEGY

Formative Assessment

Formative Assessment Task	Length (word count/time)
Draft Essay Introduction	250 words
Mock exam questions in class	600 words

Summative Assessment

Summative Assessment Task	Length (word count/time)
Essay 1 (EPOCH)	1200 words
Essay 2 (Human Geographies)	1200 words
Critical Book Review Presentation (groups of 5)	10 mins (2 mins per group member)

STATEMENT TO SUPPORT EQUALITY, DIVERSITY AND INCLUSION

Due to its small-group setting and Academic Advisory element, the tutorials programme provides ample opportunity to tailor the delivery of teaching and the feedback provided in a way that is appropriate and constructive for different learning styles. Through its intellectual focus on developing critical thinking the unit will introduce students to a range of competing theories, evidence and perspectives. Being able to contribute to discussions online supports different learning styles.

There will be a diverse reading list that will draw from a wide authorship, including those from historically under-represented groups (e.g. women and authors from the Majority World).

Course materials will be made available in advance of the class. A guided reading list will be provided.

INDICATIVE READING LIST

The majority of readings from this unit will be linked to the Reading Lists online sites for other core units, such as EPOCH and Global Human Geographies. Additional sources will be clearly indicated in the modules area of Canvas.

Title	Global Environmental Challenges
Unit code	GEOG15032
Credit rating	20
FHEQ Level (delete as appropriate)	Level 4
Core/Compulsory/Optional/ Free Choice	Core
Teaching Period	Semester 2

AIMS and SYLLABUS

The units aims to:

- Introduce students to key geographical concepts so they can understand, frame and analyse environmental problems and sustainability thinking;
- Support development of student capacities in critically analysing research evidence around key global environmental and sustainability challenges;
- Demonstrate how interdisciplinary and transdisciplinary geography research and practice, contributes to deeper understandings of, and finding solutions to, local and global environmental and sustainability challenges;
- Develop students' skills in critically analysing research evidence and identifying possibly pathways for future action (policy, activism, advocacy and/or research);
- Introduce students to knowledge that underpins the research-led teaching pathways in Human and Physical Geography at the University of Manchester that seeks to address environmental and sustainability challenges.

Syllabus :

Global Environmental Governance;
 Understanding Climate Change: evidence, causes and future projections
 Linking Colonialism, Capitalism and the Climate Crisis;
 Indigenous and Global Majority Environmental Knowledges
 (Wild)fire;
 Sustainable Development, Sustainable Mobilities, Sustainable Cities;
 Biodiversity and ecological restoration
 Environmental Pollution and Waste
 Water Management
 Energy, justice and the low-carbon transition
 Sustainable Consumption and Production
 Thinking Beyond Sustainability Siloes – Nexus Thinking and Interdependencies

BRIEF DESCRIPTION OF THE UNIT

Through Global Environmental Challenges students will be introduced to key geographical concepts, theories, and methods that will shape the way they critically understand, frame and analyse environmental and sustainability thinking and action. We will explore a range of human geography, physical geography, and interdisciplinary and transdisciplinary environmental geography research case studies on a range of topics (histories including capitalism and colonialism, Indigenous environmental knowledges, planetary boundaries, climate change, sustainable development, sustainable consumption and production, water management, energy and low carbon transitions, waste and pollution, fire, biodiversity). Through these case studies, and through the research-led policy brief assessments, students will develop their abilities to critically analyse global environmental challenges, and to identify possible pathways from understanding towards future research and action.

This unit takes an interdisciplinary approach – drawing on key knowledges across human geography, physical geography, and interdisciplinary/transdisciplinary environmental geography - to understanding global environmental challenges and the dynamics of sustainability. Students will develop their geographical understanding of environmental challenges and how they are experienced and expressed from local to global scales. They will critically engage with possible solutions and the barriers to their implementation in environmental governance.

INTENDED LEARNING OUTCOMES

Students should be able to:

Describe and exemplify the causes and consequences of a range of global environmental challenges

Describe and identify the complex interactions between societies and environments in relation to these global challenges

Describe and identify approaches to sustainability and sustainable development to find solutions to global environmental challenges

Critically evaluate the way that global environmental challenges and sustainability are framed in research, policy and practice

Conceptualise global environmental challenges and solutions at a range of scales (e.g., local to global)

Communicate geographical ideas critically and effectively for a range of audiences, including policy makers

Critically analyse geographical data and evidence and represent those effectively within evidence-based policy processes

Recognise their responsibilities as a global citizen

LEARNING AND TEACHING METHODS

Learning style:

This course unit will be mainly delivered through lectures with opportunities for student interaction (e.g., class discussion, group activities). There will be a virtual and on campus field visit to enhance learning, and assessment workshops to assist in the preparation of the Group Poster. The students will be encouraged to learn from each other in the final 'Group Policy Brief Poster' showcase to celebrate their learning across the semester.

Course Materials/Canvas:

Course materials will be available through the Canvas site for this course. Introductory context, lecture powerpoints and notes, suggested reading and other electronic resources will be provided each week, to consolidate student learning and help students to make the links between the key themes. Materials will be provided at least two days before the lecture also to accommodate DASS students' needs. Students will be expected to complete assigned reading between classes to ensure students are well supported for the assessment.

EXPECTED OUTCOMES

At the end of the course unit, students will have developed their critical understanding of the causes and consequences of global environmental challenges. They will be able to develop ideas and arguments for critically analysing these environmental challenges, synthesise research evidence towards these themes, and begin to identify possible solutions and recognise barriers and challenges to implementing these. The course builds on the key concepts and ideas developed in 'Environmental Processes and Change' and 'Human Geographies', and provides a solid foundation for further study.

Students will gain intellectual skills, being able to conceptualise and critique global environmental challenges and solutions at the local to global scale. They will develop reading and critical thinking skills, as well as writing and presentation skills for a range of audiences (policy, academic, public).

Students will gain valuable transferable skills, including working effectively in teams, understanding the role geographers can play in professional settings around these themes, and working effectively in the field. In addition, students will gain experience at engaging with literature, and critically evaluating geographical data, and representing these effectively within evidence-based policy making.

Students will develop skills in digitally enhanced research evidence evaluation, making informed judgements and critical thinking. They will develop skills to critically analyse the use, and limits, of generative AI to collate research evidence towards geographically informed environmental policy making.

Students will begin to develop understandings of how research knowledge and evidence can be used to underpin evidence led policy making and wider spaces of action (research, activism, policy, professional practice). They will develop an understanding of the transferable knowledge and skills-based learning from a Geography degree to environmental fields.

Students will recognise their responsibilities as an active global citizen.

ENHANCEMENT OF DIGITAL LITERACY

Students will be encouraged to engage with a range of digital information sources (e.g. online journal articles, books and non-academic literature) as part of their independent study.

The online Canvas pages supports learning and provides digital resources to supplement lectures and reading.

Wider support for digital literacy, for example via MyLearning Essentials and eLearning support, are signposted from the unit Canvas pages.

Students will be supported through developing critical knowledges of AI (artificial intelligence) and particularly the uses and limitations of generative AI for geographical research on the environment in human geography, physical geography, and interdisciplinary environmental geography. Students will be asked to use Co-Pilot to develop a generative AI summary around the research evidence that exists in their chosen policy topic, with an assessment of the limitations of the AI generated response, and their plans as a group for checking the accuracy, building more in-depth geographically informed research (literature reviews) that will underpin their Group Policy Brief poster.

ASSESSMENT STRATEGY

Formative Assessment

Formative Assessment Task	Length (word count/time)
Group to submit i) 600 word generative AI policy brief on chosen topic, with ii) 200 word critical reflection and iii) 200 word final Group Policy Brief Poster	<1000 words
Poster Progress (online) presentation	5 mins
Mock exam	30 mins

Summative Assessment

Summative Assessment Task	Length (word count/time)
Group Policy Brief Poster	A1 1500 words maximum
End of semester exam	1 hour

STATEMENT TO SUPPORT EQUALITY, DIVERSITY AND INCLUSION

The teaching team will be diverse in terms of gender, nationality and ethnic backgrounds, class backgrounds, as well as across physical and human geography. Further, students will have a diverse reading list to support the core geographical knowledge that underpin understanding environmental challenges, drawing on scholars from diverse backgrounds. The course will highlight the colonial histories of the discipline through a range of Indigenous, Black and critical scholars, as well as centring Indigenous environmental knowledges in the curriculum through key partners. Given the inclusion of these Indigenous knowledges students will be introduced to a broad understanding of how scientific and ecological knowledges can be transmitted, and will be taught to cite both written and oral (including video, podcast etc) transmissions through Harvard referencing system.

The sustainability element of the unit requires a broad range of views and perspectives. The unit discusses just and sustainable futures, and will explore a range of dynamics of environmental inequalities across a range of themes.

Lecture materials will be made available in advance of the class. All lectures will be podcast and a guided reading list will be provided each week. Materials will be provided before the lecture to support DASS students and those with non-diagnosed needs (at least 2 days before).

The in person and physical field class on campus will be designed to be accessible but may not be accessible to every student and member of staff. Being on campus does mitigate some of these but considerations but alternative arrangements might still be required to enhance inclusion and will involve prior discussion with relevant teams and individuals in advance of the class.

A virtual fieldtrip will be developed for all students, and supplementary virtual fieldworks could be developed for any students unable to access the learning in the field.

The two different assessments – a Group Policy Brief Poster, and Exam – which are supported by scaffolded formative feedback, engages with range of skills across academic knowledge, dissemination, and group work. This will ensure that students from a range of backgrounds and abilities can be supported in doing well across the assessments.

INDICATIVE READING LIST

A guided reading list will be provided each week. The essential reading is required, whilst recommended reading will help to further develop understanding of the lecture materials. You will need to read widely to do well in the assessment.

Illustrative Readings around AI, Research and Policy

Heidt, A. (2025). AI for research: The ultimate guide to choosing the right tool. Curious about using artificial intelligence to boost your research? Here are the programs you shouldn't miss. *Nature*, 7th April 2025, Available from: [AI for research: the ultimate guide to choosing the right tool](#)

Schryen, G., Marrone, M., Yang, J. (2025). Exploring the scope of generative AI in literature review development. *Nature Electronic Markets: The international journal on networked business*, 13 (2025). Available from: <https://doi.org/10.1007/s12525-025-00754-2>

Storey, V.C. (2026). AI tools boost individual scientists but could limit research as a whole. *Nature*, 14th January 2026. Available from: [AI tools boost individual scientists but could limit research as a whole](#)

Wilby, R.L., & Esson, J. (2024). AI literacy in geographic education and research: Capabilities, caveats, and criticality. *The Geographical Journal*, 190(1), e12548, Available from: <https://doi.org/10.1111/geoj.12548>

Title	Data Science for Geographers
Unit code	GEOG 15022
Credit rating	20
FHEQ Level (delete as appropriate)	Level 4
Core/Compulsory/Optional/ Free Choice	Core
Teaching Period	Semester 2

AIMS and SYLLABUS

The unit aims to:

- Introduce students to the range of geographical data types, and the contexts in which they are produced and used
- Develop students' geographical numeracy in order to summarise and explore geographical data
- Enable students to visualise geographical data effectively, using appropriate techniques
- Provide a foundational introduction to Geographical Information Systems (GIS) for managing and presenting spatial data.
- Build confidence in handling data.

Syllabus:

Block 1: Fundamentals

What are geographical data? How do we describe and summarise data? How do we move from sample to population? How do we compare samples? What do we mean by significance? How do we analyse relationships?

Block 2: GIS

Data attributes; joining data; creating heat maps; working with raster data; digitisation of geographical data

BRIEF DESCRIPTION OF THE UNIT

This unit introduces students to the fundamentals of **data science for geographers**. It provides a foundational understanding of how geographical data are generated, described and communicated within human and physical geography. Students will explore different types of geographical data and consider their appropriate uses. The unit develops core skills in geographical numeracy. It provides training in the visualisation of geographical data, and introduces GIS as a tool for managing and presenting spatial data. The emphasis throughout the unit is on developing data literacy, critical thinking and effective communication of geographical data.

INTENDED LEARNING OUTCOMES

Students should be able to:

Apply and interpret quantitative techniques, to summarise and analyse geographical data

Interpret geographical datasets to identify patterns and trends using appropriate visual techniques

Apply introductory GIS methods to manage and present spatial data

Produce clear and appropriate data visualisations to communicate geographical data effectively

Communicate clearly in written and visual formats, demonstrating data literacy, digital competence and numeracy

LEARNING AND TEACHING METHODS

The course will be delivered by a mix of lectures and smaller-group computer practicals with TA support.

Course materials/Canvas:

Course materials will be available through the Canvas site for this course. Introductory context, notes, suggested reading and other resources will be provided each week, to consolidate your learning. A high level of attendance is expected to ensure that you are well supported for the assessment.

EXPECTED OUTCOMES

Students will be able to describe and differentiate between different types of geographical data, including qualitative and quantitative data, and the contexts in which they are produced and used. They will be able to reflect on the precision, accuracy and uncertainty of geographical data.

Students will be able to work with confidence with different types of geographical data, applying and interpreting statistics appropriately, and demonstrate data literacy, numeracy, accuracy and critical thinking skills.

Students will gain experience of producing clear and professional quality data visualisations, supporting their ability to communicate technical information to both specialist and non-specialist audiences.

Students will have developed a suite of data-handling and digital skills, highly valued by employers in a range of sectors.

ENHANCEMENT OF DIGITAL LITERACY

The unit enhances digital literacy by developing the student's ability to work confidently and critically with a range of digital tools and software packages.

Students will learn how to manage geographical datasets, apply basic analytical functions and produce digital maps to represent spatial data.

By the end of the unit, students will have developed transferable digital competencies in data handling, interpretation and communication, supporting both academic progression and future employability.

The online Canvas pages supports learning and provides digital resources to supplement lectures and reading.

Wider support for digital literacy, for example via MyLearning Essentials and eLearning support, are signposted from the Canvas pages.

ASSESSMENT STRATEGY

Formative Assessment

Formative Assessment Task	Length (word count/time)
Oral feedback on progress with the infographic in the visualising data section	10 minutes
Multiple choice quiz via Canvas	
Oral feedback on progress with the map in GIS section.	
Multiple choice quiz via Canvas	10 minutes

Summative Assessment

Summative Assessment Task	Length (word count/time)
Assessment 1: Data Visualisation	Figure, plus 600 words interpretation
Assessment 2: Map	Map, plus 600 words justification and interpretation

STATEMENT TO SUPPORT EQUALITY, DIVERSITY AND INCLUSION

Lecture materials will be made available in advance of the class. All lectures will be podcast and a guided reading list will be provided each week.

We encourage the teaching team to have a diverse reading list, including authors from traditionally underrepresented groups.

INDICATIVE READING LIST

Chen, C.H., Härdle, W.K. and Unwin, A. eds., 2007. Handbook of data visualization. Springer Science & Business Media.

Longley, P. A. Goodchild, M. F. Maguire, D. J. and Rhind, D. W. (2015) Geographic Information Science and Systems, Fourth Edition. Hoboken, NJ: John Wiley & Sons