



**Maynooth University
Department Of Geography**

MSc. Climate Change

Course Handbook

2020-2021

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1. WELCOME TO THE DEPARTMENT OF GEOGRAPHY



Welcome to Maynooth Geography and to the MSc in Climate Change. You join a group of scholars with an international reputation. You will find you are sharing your learning with people who are engaged in research published in the leading scientific journals, including Nature and Science. Your lecturers include people prominent in framing the work of the Intergovernmental Panel on Climate Change, who have advised the Citizens' Assembly on Climate Change, and who are regularly relied upon by responsible journalists.

The external assessors of our course regularly praise the quality of work produced by Maynooth's graduate students in Climate Change. You are working at the research frontier and can expect speculations in one class to become hypotheses for published work later in the year. It's an exciting prospect for you. So please do follow the tradition of MSc Climate Change students of being marvellous departmental citizens, attending department seminars, supporting publications in the Department and ICARUS blogs and in our staff-student publication, Milieu.

If you see me around, stop and say hello,

With best wishes,

Gerry Kearns, Head of Department

A handwritten signature in black ink, appearing to read 'G. Kearns' with a stylized flourish at the end.

Gerry Kearns, Professor of Geography
Head of Department

2. IMPORTANT DATES

KEEP AN EYE ON IMPORTANT DATES PAGE ON THE UNIVERSITY WEBPAGE

<https://www.maynoothuniversity.ie/registrar/key-term-dates>

First Semester

24th September 2020: Taught Masters Induction (University)

28th September 2020: Start of Lectures and Course Orientation

1st October 2020: Department Postgraduate Welcome (Details TBC)

31st October 2020: Registration deadline for Postgraduate modules (semester 1)

31st October 2020: Deadline to withdraw from studies without losing free fee status

26th October 2020: Study Week

21st December 2020: Christmas Vacation

Second Semester

1st February 2021: Start of Lectures

12th February 2021: Thesis Proposal Presentations

15th March 2021: Study Week

5th April 2021: Easter Vacation

12th April 2021: Lectures Resume

7th May 2021: Last day of term

30th July 2021: Deadline for submission of thesis and end of course

3. COVID-19 INFORMATION

Maynooth University is adopting a blended approach to teaching for the coming year. The University will communicate with students about what this means for accessing campus and for conduct on campus. For the MSc Climate Change, this means that, insofar as the public health situation allows, we will try to offer some elements of in-person teaching alongside other materials provided online. Each module will have its own approach to delivery, no one size fits all and staff have given careful consideration as to how each module can deliver a quality learning experience and learning outcomes in a safe way, that allows us be flexible in the face of uncertainty and changing public health circumstances. Should the need arise we will revert to online delivery only and have ensured that all components of the course can be delivered in either scenario.

Our priorities for this year are to deliver a quality learning experience while above all ensuring the health and well-being of all students and staff within our learning community. For some staff and students health considerations will make attendance on campus too risky and we will facilitate, insofar as we are able, students having access to as much of our course content as possible via remote access. We will be flexible to each other's needs and do all we can to support you and each other over the coming year. We are certain that we can deliver a course that meets all of our expectations in a safe way. Communication will

be key so please feel confident and supported in speaking to all staff and indeed each other on any matter.

The latest guidelines from the Health Service Executive mandate face covering plus a distance of at least one metre for activities that cannot be followed on the basis of 2m distancing. Lecturers will generally not be wearing masks to lecture so the distance between lecturers and students will be 2m or more for lectures. The current guidelines also mandate a maximum room capacity of 50 for indoor events. With recent restrictions for Dublin, the University has decided to limit capacity of indoor events to 30 for the duration of the Dublin restrictions. This will not affect us give our class size. We will host the majority of our on-site engagements in the Rocque Lab in Rhetoric House. The capacity of that room, given the size of the class means that we will be able to maintain 2m distancing for everyone.

Finally, we remind you that you should not attend class or come to the university if you are feeling unwell with symptoms of COVID-19. Could we please ask you to alert the course directors if you are unwell and/or asked to self isolate with suspected COVID-19 so that decisions can be made about the course delivery.

4. INTRODUCTION AND USE OF HANDBOOK

The MSc in Climate Change at Maynooth University is offered by the Department of Geography to provide Graduates with the knowledge, skills and experience necessary to enable them to undertake analysis of both global and Irish related climate change science, impacts and policies. The MSc was first offered in 2008-09 in response to the need for trained graduates in meeting the challenges posed by climate change, and is the only course of its type offered in Ireland.

The MSc in Climate Change is a full-time postgraduate programme running from the commencement of the first semester to the submission of a research thesis (deadline end of July). The modules offered are wide ranging and designed to impart a breadth of skills that will be of use in succeeding years, and to nurture independent and critical thinking on climate change issues. This handbook is intended to be the first point of reference for module overviews and assessment or for any queries that you have about the course. If you cannot find answers to any question you may have please get in contact with the course directors (Conor Murphy and Lisa Orme). Students are encouraged to actively participate in all lectures, practicals and seminars and to fulfill the requirements of the various components of the course. Since this is a postgraduate course, a high level of performance and contribution is expected from each participant.

5. IRISH CLIMATE ANALYSIS AND RESEARCH UNITS (ICARUS)

ICARUS is the largest dedicated climate change research and modelling centre in Ireland and conducts both pure and applied research covering all aspects of climate change from

regional climate modelling to impact assessments in a variety of sectors and provides a wide and diverse range of research capabilities in the climatic arena. Researchers in *ICARUS* have a strong record of publication in International journals and have provided climate change information for key policy documents in Ireland as well as leading and contributing to the international Intergovernmental Panel on Climate Change (IPCC) reports. Key researchers with *ICARUS* will be involved in teaching and supervising on the MSc throughout the year, with the objective of linking teaching with cutting edge research that is being undertaken by *ICARUS*. There is a vibrant postgraduate environment in *ICARUS* of which you will be an important part and will be expected to contribute to. For more information on *ICARUS* and the type of research undertaken see the following link: <http://icarus.nuim.ie/>

6. OBJECTIVES OF THE MSC CLIMATE CHANGE

- To introduce students to current global climate change issues and impacts
- To provide training in research methods appropriate for understanding observed and future climates and their impacts
- To develop the capacity for undertaking independent research in the climate change area
- To provide a professional education in the area of climate change policy for those who need to be familiar with current developments for mitigating and adapting to future climate change.

7. PROGRAMME OUTCOMES

At the end of this course students will:

- Have a knowledge and understanding of the basic principles involved in the wide range of subject material that can be involved in tackling the management of climate change.
- Have developed specialist knowledge and skills in the area of climate change.
- Have developed the ability to bring specialist knowledge and skills together in order to develop an understanding of alternative courses of action in the management of environmental problems.
- Appreciate the complex and multi-faceted nature of climate change problems and to realise that no one simple formulation or solution to them is likely.
- Have the ability to convey ideas and recommendations clearly and logically in both verbal and literary form.

8. TRANSFERABLE SKILLS

In addition to in-depth specialist knowledge, the realisation of programme outcomes will also impart a range of valued and transferable skills that are relevant for a wide range of future employment and research opportunities. These include:

- data processing and analysis skills (such as quality assurance, statistical techniques);
- writing policy and technical reports;
- assembling scientific evidence in decision-making contexts;
- technical presentations;
- research design;
- quantitative methods and modelling concepts

9. PROGRAMME STRUCTURE AND REQUIREMENTS

To meet the requirements of the MSc in Climate Change, students are required to accumulate 90 credits. Table 1 shows the modules available in semesters one and two and the associated credits for each module. All modules are compulsory and the thesis is a required module. The programme will be delivered through lectures, practicals and seminar presentations. A variety of assessment techniques will be used, including; practical assignments, group and individual seminar presentations, terminal examination and research thesis. The sections of this handbook detailing the module outlines provide further information on the types of assessment for individual modules. Students are encouraged to closely read the marks and standards guidelines laid down by the university. These can be found at the link:

<https://www.maynoothuniversity.ie/sites/default/files/assets/document//MU%20Marks%20and%20Standards%20-%20ver%2030%20March%202020.pdf>

To qualify for the award of Master of Science, students must:

- Pass all modules (40% or higher).
- Obtain at least 40% in the research thesis.
- Obtain at least 40% on aggregate in the course.

For modules other than the thesis a mark of at least 35%, but less than 40% can be compensated for by other modules. Marks below 35% cannot be compensated and will be recorded as incomplete/not passed. A student who has an incomplete grade in one or more modules will not be assigned a course mark and will be graded as Fail or Incomplete as appropriate. In cases where a student obtains a mark of less than 35% in a module (excluding the thesis) effort will be made to provide a supplemental assessment during the same period of study. A course mark will not be allocated to a student who has insufficient credits - either by not being registered or by not attending the relevant examination or if they are not awarded a mark in a module. The grading system used for each module and the overall course is as follows and grade related criteria for different forms of assessment can be found later in the handbook:

First Class Honours:	70+%
Second Class Honours Grade I:	60<69%

Second Class Honours Grade II:	50<59%
Pass:	40<49%
Fail:	<40%

	Code	Module Name	Credits
Semester One	GY652	Applied Climate Sciences (PT/RF)	10
	GY655	Impacts, Adaptation and Mitigation (CM)	10
	GY672	Spatial and Temporal Data using R (CB)	10
	GY671	Field Course (CM)	
	GY660	Research Tutorial (CM/LO)	
Semester Two	GY667	The Ocean and Climate Change (GMC)	10
	GY671	Field Course (CM/HS/GMC/LO)	10
	GY663	Detection, Attribution and Decision Making (CM/PT)	10
	GY660	Dissertation/Thesis	30

Table 1: MSc Structure and module credits

10. COURSE TIMETABLE

The course timetable for semesters one and two are outlined below, most classes will be hosted online and/or in Rocque Lab in Rhetoric House so as to facilitate social distancing. Some modules will run in workshop format facilitating students to focus on developing thesis topics, especially in the second semester. The timetable has been organised to allow more than sufficient time for preparation for class and the timely completion of assignments. Students will have use of the department computer rooms. However these rooms are also used for general departmental teaching and also subject to social distancing requirements. Students should use their time in the computer lab as effectively as possible.

The times below are core hours for each module. However it is important to note that class activities may take place outside these hours and you will be advised in each module when this might occur, for example for longer workshops, field excursions and class assignments.

Table 2 Timetable schedule for Semester 1

Time	Monday	Tuesday	Wednesday	Thursday	Friday
09.00-10.00					
10.00-11.00					
11.00-12.00	GY655 (RL)	GY652 (RL)	GY672 (Online)		
12.00-13.00	GY655 (RL)	GY652 (RL)	GY672 (Online)		GY600 (RL)
13.00-14.00					GY600 (RL)
14.00-15.00					GY671 (RL)
15.00-16.00					GY671/ (RL)
16.00-17.00					

Notes on semester 1 timetable

GY655, GY652 and GY672 will run weekly throughout the semester. GY655 will be delivered online by the instructor but students can come to the classroom. A teaching assistant will help with inclass delivery. GY672 will take place entirely online.

GY660: this will run as a tutorial for the first weeks up to mid-term to support your transition to working with R and working with data. After we complete the tutorial the session will move to developing a thesis topic and support you in that process.

GY671: Field Course: We will aim to get two of four field course topics done in semester 1. The first will take place on 2nd and 9th of October with Dr. Lisa Orme on working with Paleoclimate Data. The class will take place from 14.00-16.00 each day.

Table 2: Timetable/Schedule for semester 1

Time	Monday	Tuesday	Wednesday	Thursday	Friday
09.00-10.00					
10.00-11.00	GY663 (RL)		GY667 (RL)		
11.00-12.00	GY663 (RL)		GY667 (RL)		GY671/GY600 (RL)
12.00-13.00					GY671/GY600 (RL)
13.00-14.00					
14.00-15.00					
15.00-16.00					
16.00-17.00					

11. SEMINARS

Throughout the year the Department of Geography’s seminar series will include climate change related topics and will also be relevant to developing and planning your research. The seminar series will typically take place on Thursday afternoons at 4.00 pm with some delivered as a lunchtime workshop. Seminars will be available online and links provided

for each. If public health guidelines allow some will be allowed to attend on site and details will be given about who and how to do so on a ticketing basis. The series will introduce students to frontier research/research design in geography, environment and climate and examine how researchers seek to formulate research questions. Students will be exposed to key issues in research, particularly developing suitable methodologies in addressing specific research questions. Each seminar will be delivered by a national or international researcher, who will provide detail on the methodology they have applied in a specific project. The researcher will illustrate issues and methodological challenges associated with undertaking research.

**DEPARTMENT OF GEOGRAPHY
RESEARCH SEMINAR SERIES 2020-2021
Semester One Schedule**

2020	
October 1 st	Department of Geography Postgrad Welcome - no seminar
October 8 th	Niamh Moore-Cherry (UCD) Title TBC
October 22 nd	Dr Debangana Bose (Maynooth University) <i>Autogenic Displacement: Beyond Mega Displacement in the Global South</i>
Week of 2 nd November	Prof. Mary Gilmartin (Maynooth University). <i>How to engage with seminars: asking questions and confidence building: Lunchtime workshop. Venue and Date TBC.</i>
November 5 th	Dr. Conor Cahalane, Jack French, and Jonathan Faull (Maynooth University) <i>5*S: Space, Surveyors and Students: STEM and the Sustainable Development Goals—an SFI Discover STEM outreach project</i>
Week of 9 th November	Dr. Malene Jacobsen and Dr. Sam Grainger (Maynooth University) <i>Professional development for early career researchers and teaching staff. Lunchtime Workshop. Venue and Date: TBC</i>
November 19 th	PhD Research Seminar
November 26 th	PhD Research Seminar
December 3 rd	Dr. Patrick Bresnihan (Maynooth University) Title TBC
December 10 th	Sam Blanckensee (Maynooth University) <i>Lunchtime (1.00pm) Workshop from MU Equality/Diversity Officer. Venue: TBC</i>

12. ATTENDANCE AND ASSIGNMENTS

Attendance (virtual included), punctuality and participation are compulsory for all classes and students are expected to come prepared to class. If there is a documented personal/medical reason for not participating in class, it is the student's responsibility to let the instructor and course director know in advance. As a postgraduate student learning to be a Master of your discipline, it is expected that you turn up for class on time and participate fully on all occasions. Problematic attendance, punctuality and participation will be reported to course director.

Mandatory deadlines will be strictly enforced. We have coordinated all assignments across modules as much as possible so that student workload will not get piled up. Assignments submitted after the set deadlines will be penalised 3% of their overall mark per day for late submissions, with a cap/maximum penalty being that final grade can't drop below 40%. Exception: If there are extenuating personal or medical circumstances, the course director and instructor will consider extensions on a case by case basis. The circumstances must be communicated to, and accepted by, the lecturer prior to, or, in cases of unexpected emergencies, immediately after, the relevant deadline.

For all module assignments/coursework, the standardised **cover sheet** must include: the name of the student, her/his student number, the title and code of the module, the name of the lecturer who gave the assignment in question; when appropriate, a thematic title for the work; and the total word count of the student's work, along with what percentage the submitted work is over/under the assigned word count. A blank cover sheet will be available on the GY660 webpage (MSc course Moodle page).

Word-count limits will be strictly enforced and penalties applied for continuous assessment work (incl. essays/literature reviews/critical reflections) significantly over- or under-word counts. For every 10.1% over/under a designated word-count, students will be penalised by 3% of their overall mark, with a cap/maximum penalty being that final grade can't drop below 40%. (So, if you are 10.1% over, you will be penalised 3% of your overall mark; if you are 20% over, you will be penalised 6%; if you are 30% over, you will be penalised 9%; and so on). Students are required to indicate what the assignment total word count is on the cover sheet accompanying submission of coursework.

13. GRADE RELATED CRITERIA

Marking criteria and guidelines used for marking are presented here for the following types of assessment: Coursework essay, Examination essay, Coursework Reports, Oral presentation. These broad guidelines should be read in conjunction with any specific advice on assessment that may be provided by module leader.

COURSEWORK ESSAYS: The key criteria used to arrive at the mark reflect the ability of students to:

- respond to a specific question
- structure an argument
- think independently
- support an argument with reference to different literature and examples
- evaluate different kinds of evidence
- undertake independent study of the topic in question
- communicate effectively in writing
- produce a well-presented piece of work

EXAMINATION ESSAYS: The key criteria used to arrive at the mark reflect the ability of students to:

- respond to a specific question within a limited amount of time
- structure an argument
- think independently
- support an argument with reference to different literature and examples
- evaluate and weigh up different kinds of evidence
- undertake independent study of the topic in question
- communicate effectively in writing

COURSEWORK REPORTS: The key criteria used to arrive at the mark reflect the ability of the students to:

- present data appropriately in graphical and tabular form
- interpret data in relation to specific questions/hypotheses using clear reasoned arguments or observations
- analyse data – using correct statistics if appropriate
- show awareness of the strengths/weaknesses of methods of investigation
- communicate effectively in writing
- think independently and critically about data, analysis and interpretation
- where appropriate use literature to support their arguments and interpretations throughout
- produce a well-presented piece of work

ESSAYS, EXAMS, REPORTS

Class	Mark Range	Grade Related Criteria for Essays/Exams/Reports
First Class Honours	80+	<ul style="list-style-type: none"> – Outstanding answer based on extensive reading that demonstrates an impressive ability to understand theoretical literature and to make connections between that literature and appropriate examples. – Exceptional insight and originality in the use of evidence. – Very well written with no grammatical or other errors. – Contains material of publishable quality, as a whole or in part, as

		<p>a journal paper, and is worthy of retaining for reference.</p> <p>(Reports)</p> <ul style="list-style-type: none"> – Exceptional insight and originality in the application of methodology – Exceptional analytical skills as evidenced by – Ability to make connections between own results and the literature, where appropriate
	70-79	<ul style="list-style-type: none"> – Excellent answer based on extensive reading and a clear understanding of theoretical debates. – Original or insightful answer drawing on own observations and critical treatment of literature. – Contains material that is potentially of publishable quality, in part, as a journal paper, and / or is worthy of retaining for reference. <p>(Reports)</p> <ul style="list-style-type: none"> – Strong insight and/or originality in the application of methodology – Original or insightful answer drawing on own observations – Strong analytical skills – Ability to make connections between own results and the literature, where appropriate
Second Class Honours Grade I	60-69	<ul style="list-style-type: none"> – Very good answer that shows a thorough understanding of arguments, contributions and context, with efficient use of relevant reading and examples. – Well organised, clearly expressed and a direct response to the question / topic. – Evidence of good analytical skills and reflecting wider reading. – Does not display the outstanding ability, critical acuity and/or originality characterising the award of first class honours <p>(Reports)</p> <ul style="list-style-type: none"> – Shows insight and thoroughness in the application of methodology – Good analytical skills – Ability to make connections between own results and the literature, where appropriate

Second Class Honours Grade II	50-59	<ul style="list-style-type: none"> - Competent treatment of ideas and concepts from classes and set reading - Little evidence of independent critical appraisal. - Evidence of good effort and sound argument, but little spark or critical insight. <p>(Reports)</p> <ul style="list-style-type: none"> - Competent but lackluster application of methodology - Little attention given to limitations of approach - Good analytical skills - Lacks connections between own results and the literature, where appropriate
Pass	40-49	<ul style="list-style-type: none"> - Shows a basic understanding of the question / topic and of the broader subject area - Little evidence of detailed knowledge or reading is partial and selective - Contains mistakes, misunderstandings or irrelevant material. - Poor organisation, poor expression and an uncritical approach. <p>(Reports)</p> <ul style="list-style-type: none"> - Poor organization and application of methodology - Poor analytical skill - Few connections between own results and the wider literature
Fail	0-39	<ul style="list-style-type: none"> - At worst, nothing of relevance in answer to the question / topic. - At best, not a direct response to the question / topic, but shows some basic understanding of the general field. - Likely to be muddled and/or incomplete, and poorly expressed. - Little evidence of reading or reading sources are trivial. <p>(Reports)</p> <ul style="list-style-type: none"> - Inappropriate application of methodology - Poor understanding of approaches - No analysis of results - No connections between own results and the wider literature
Fail	0	<ul style="list-style-type: none"> - Copied or plagiarised answer with no intellectual input from student - Work penalised for late submission without the granting of an extension by the module facilitator. - Plagiarised material may be reported to the University Authorities

ORAL PRESENTATION: The key criteria used to arrive at the mark reflect the ability of students to:

- structure an oral presentation
- compile suitable material
- communicate effectively
- deliver a balanced and complete presentation within a time limit
- design and use visual aids

- undertake independent study of the topic in question
- respond to questions

PRESENTATIONS

Grade Range	Indicative Mark	Grade Related Criteria for Oral Presentations
90-100	95-100	Advanced and mature presentation exhibiting substantial oratorical skills. Material presented is balanced and been very well researched. Excellent anticipation and fielding of questions. Excellent structure. A balanced and complete presentation delivered within a time limit. As good as can be expected at this academic level.
	90-94	Advanced and mature presentation, well researched and balanced content. Evidence of critical thought and analysis, very good with appropriate illustrative material. Very good anticipation and fielding of questions. Delivered within a time limit.
80-89	85-89	Excellent oral presentation, well-paced and balanced. Content and depth of knowledge are beyond that delivered from lectures. Confident delivery, imaginative and enthusiastic performance that holds a captive audience, very confident response to questions. Delivered within time limit.
	80-84	Excellent oral presentation with suitable material, well structured, excellent use of visual aids. Shows substantial knowledge and understanding of topic. Confident delivery, keeps to time and confident in responding to questions.
70-79	75-79	Very good presentation scoring highly on structure, suitable material, communication. Well researched with aims and conclusions clearly stated. Good ability to handle questions. Keeps to time.
	70-74	Very good presentation balanced and keeps to time. Confident delivery of suitable material with good visual aids. Well researched and competent handling of questions. May lack polish and fluency of a higher scoring presentation.
60-69	68	A good presentation with a clear logical structure, coverage of well researched, suitable material and good visual aids. Some ability to handle questions.
	65	A good presentation, well-structured and appropriate delivery of researched material. Some minor shortcomings may include aims not clearly indicated, contents pitched at a slightly wrong level, inconsistent handling of questions
	62	A competent presentation delivering appropriate, researched material. Shortcomings may include slightly imbalanced structure, some time keeping difficulties, inconsistent quality of visual aids and/or poor handling of questions.
50-59	58	A competent presentation demonstrating a reasonable standard in all aspects of the presentation. Content is largely relevant and

		shows some evidence of research. Some of the ideas may be less well expressed, may be unable to handle questions.
	55	Presentation is largely relevant but may be variable in quality. May not be completed within the time available or may be significantly imbalanced. Visual aids may be variable in quality and relevance. Unable to handle some questions.
	52	Adequate presentation but under performs in one or more key areas. Delivery may lack confidence, inability to hold audiences attention through the presentation.
40-49	48	Weak but acceptable presentation. Some irrelevant or inaccurate material is included. May be significantly under or over time limit. Unable to handle the majority of questions.
	42	Poor presentation with flaws in some aspects. May include a significant amount of irrelevant material. Presentation lacks structure and the presenter does not engage with the audience. Visual aids are poorly constructed, not always relevant and difficult to see. Unable to handle the majority of questions.
FAIL		
30-39	38	Presentation narrowly but clearly fails in several aspects. There may be major gaps in knowledge and understanding, and/or inclusion of substantial amounts of irrelevant material. May be substantially over or under the time limit.
	32	Presentation is unacceptable and fails on many of the key criteria. Limited knowledge and understanding, disorganized with insufficient explanation. Delivery is poor, for example; substantially over or under time and /or largely inaudible. Unable to handle questions.
20-29	25	Presentation fails on most key points. Very limited material, complete inability to understand or answer questions, audience disinterested. Sections may be inaudible, the majority of visual aids are difficult to see or inappropriate.
10-19	15	Unacceptable presentation, content largely irrelevant, few suitable visual aids, may be inaudible. Fails on all key criteria.
1-9	5	Unacceptable presentation, content entirely irrelevant, no suitable visual aids, may be inaudible. Fails on all key criteria.
0		No attempt, or not ready to present by deadline, or plagiarized.

DISSERTATION: The key criteria used to arrive at the mark reflect the ability of students to:

- Produce professional, potentially publishable research
- Exhibit critical ability and depth of understanding of specific areas of study
- Develop and deliver on research aims and objectives
- Implement appropriate methodologies
- To place their own work in the context of wider literature
- Write academically

- Structure and present a significant volume of work.

<i>DISSERTATIONS</i>		
Class	Mark Range	Grade Related Criteria for Dissertations
First Class Honours	80+	<ul style="list-style-type: none"> – Outstanding piece of research of publishable quality, as a whole or in part. – Impressive critical ability and understanding, demonstrated by extensive reading and by location of the research within wider theoretical debates. – Very well focused and appropriate research aims and context. – Excellent and original research design and implementation, with a full, critical and reflexive discussion of the methodology adopted. – Outstanding analysis of the empirical material. – Full conclusions that discuss the original findings of the research and its contribution to the wider literature. – Presentation outstanding
	70-80	<ul style="list-style-type: none"> – Excellent piece of research that is potentially of publishable quality with development. – Insightful understanding of theoretical debates, and the contribution of the research project to these debates. – Clearly focused and appropriate research aims and context. – Very good and original research design and implementation, with a full discussion of the methodology adopted. – Excellent analysis of the empirical material, drawing out conclusions at a higher analytical level.
Second Class Honours Grade I	60-69	<ul style="list-style-type: none"> – Very good and well-executed piece of research, which is clearly located within wider theoretical debates. – Worthwhile and well formulated research aims and context. – Good research design and implementation, with a thoughtful discussion of the methodology adopted. – Good analysis of the empirical material. – Well researched and presented but discrepancies and shortcomings may not be fully explored. – Evidence of good analytical skills but does not display the outstanding ability, critical acuity and/or original contribution to the wider literature that characterise award of first class honours.

Second Class Honours Class II	50-59	<ul style="list-style-type: none"> - Competent and well-organised piece of research. - Evidence of good effort and sound outcome but lacking in imagination and critical insight. - Research aims and context may be unfocused. - Dissertation may fail to achieve objectives fully or to reflect critically on the wider literature and the methodology adopted. - Analysis of the empirical material is sound but could be developed more fully and critically. - Brief and/or weak conclusions may fail to demonstrate the contribution of the research to the wider literature. - Reading base narrow and selective, overly partial.
Pass	40-49	<ul style="list-style-type: none"> - Deficient in effort or analysis. - Demonstration of poor analytical skills. - Incomplete and/or inaccurate analysis of the empirical material. - Lacks critical understanding of wider theoretical or methodological literature. - Weak research aims, context and conclusions. - Little evidence of understanding, detailed knowledge or reading. - Contains mistakes, misunderstandings or irrelevant material. - Poor organisation, poor expression and an uncritical approach. - Reading base very weak and thin.
Fail	1-39	<p>Fail (0-39) Work that displays little or no real understanding of the topic. There is no coherent argument. The piece relies on a very limited amount of descriptive material, without any critical reflection of its significance.</p> <p>30-39 No evidence of independent research; insignificant or no argument; superficial; often irrelevant or tangential. Inadequately informed, erroneous in matters of fact and interpretation, poorly organised. Poorly written with numerous grammatical and spelling errors.</p> <p>20-29 Failure to carry out the task assigned. Contains no relevant information. Some attempt at analysis, but misconceived and/or incoherent, and has a weak structure.</p> <p>1-19 No serious attempt to carry out the task assigned. No structure at all. No attempt at analysis. No understanding or knowledge of the topic.</p>
Fail	0	<ul style="list-style-type: none"> - Copied or plagiarized work with no intellectual input from student - Work penalised for late submission without the granting of an extension by the module facilitator. - Plagiarised material may be reported to the University Authorities

14. RECEIVING FEEDBACK ON YOUR WORK

Feedback will be provided on your coursework both in terms of a numerical grade and written suggestions on how to improve in further work. The marking criteria above will help you to interpret the numerical grade assigned to your work. Feedback will not be provided before the final cut-off date for submission has passed. The timing of receipt of feedback after this time will vary between teaching staff, but every effort will be made to return work as promptly as possible. Feedback will be provided on a standard form and will highlight strengths, areas for improvement, aspects to note for future work and any appropriate additional comments.

15. ACADEMIC INTEGRITY

University work must meet the professional standards of honest and moral behaviour for academic work. The organisation that validates the quality and standards of universities in Ireland, [Quality and Qualifications Ireland](#), reminds us that the purpose of assessment is ‘to ascertain understanding and demonstrate the achievement of specific learning outcomes.’ It is illegal, according to the Qualifications and Quality Assurance (Education and Training) (Amendment) Act 2019, to do work on behalf of someone else and the QQI is empowered to prosecute those who cheat for others. The university is committed to making cheating difficult and to prevent students cheating their way to a degree. We all have a role to play if we are to have a community based on honesty, fairness, respect, and responsibility. Students need also to have the courage to do the right thing even they face serious challenges. The QQI tells us that students must ‘ensure that all submitted work for assessment purposes in an academic setting [...] correctly acknowledges the source of any data which is not original to the learner.’ To understand what this requires you need to familiarise yourself with the natures and risks of plagiarism.

Plagiarism

Plagiarism is taking credit for the work of someone else. When you are asked to submit work for evaluation we are testing your understanding of the concepts, information, and debates within some field of Geography. This is why the essay, dissertation or short answer should be your own work. Of course, your work will draw upon the ideas, data, and discussions presented whether by your lecturers or in the articles or books that have been recommended to you or that you have found for yourself. You avoid plagiarism by composing your answer for yourself while giving credit to your sources. There are three main ways that plagiarism arises.

1. Using the words of someone else without proper acknowledgement

Sometimes you will think it helpful to use the words of someone else in your essay. This may be because you want to discuss further something you have read. It may be because it is a particularly concise statement of something. In any such case you must indicate that the phrase, sentence or short paragraph is the work of another person. You should put their

words in quotation marks—” “. You should also give a reference to the source. In the text of your essay and immediately following the quotation you should give the source in some form similar to this—(Bloggs, 2008: 33). The first part of the reference here is the author’s surname and the year of publication, and this tells me where in your bibliography I can find the full details (and this is why your essay must have a bibliography). The part at the end is the page number where I could find the quotation if I wanted to look it up. In this way you have told me your source and you have let me check it for myself. You can find further guidance to referencing in *The Reference Point: The Maynooth Guide to the Harvard Referencing System*, [available online here](#). You will also need to consult your lecturer, or module specific handbooks, and pay attention to the general practice in the particular subdiscipline of Geography you are working in. For example, quotation is more frequent in some areas of Human Geography than it is in many areas of Physical Geography.

Even if you use the words of another person and you put them in quotation marks and you give the source you used, you must still explain in your own words what this means or make it clear from the context in your essay that you understand the sense of the quotation. For example, it would be perfectly alright for you write something like this—‘The reasons why land values are generally high at the core of cities include accessibility and prestige, and these have been called the “benefits of centrality” (Christaller, 1945: 66).’ I am telling you where I learned about the causes of high land values at the centre of cities and it is clear from the context that I understand accessibility and prestige to be what Christaller referred to as the “benefits of centrality.”

2. Relying too heavily upon the words of others even with proper acknowledgement

Remember, that we are trying to assess your understanding of what you have read. We can’t do that if your essay is mainly composed of extracts from the works of others even if these are properly referenced both in text and in your bibliography. One way to avoid this is to remember that when you quote someone’s words you must show that you have understood what is being said. This will mean that most quotations will be accompanied by explanatory text of your own relating to the quotation to the question you have been asked to consider. Also remember that there is little point quoting your source if there is no special reason for doing so. As I said above this might be because you specifically want to discuss in detail the claim made by the author or it might be because they have expressed things particularly clearly and your own explanation can best be developed by elaborating upon these quoted words. As a guide for you, it would be odd for quotations in a student essay in Geography to make up as much as a quarter of the essay although for some work in Literary Geography that might occasionally occur.

3. Using the work of others without proper acknowledgement even where no direct quotation is included

You are always being asked questions that require you to draw upon the work of others to answer them. We need to know the source of your information. For example, if I were to be asked how central places develop in a predominantly agricultural society, I might talk about Walter Christaller’s central place theory that I may read about in book by Peter Haggett. If so, I might write something like this—‘In agricultural societies, the bringing of food to market may cause the development of market towns. Christaller argued that these would

likely be relatively evenly spaced across the landscape (Haggett, 1965).’ I am telling you that this idea comes from the work of Christaller and I am telling you that I learned about this in the book by Haggett, the details of which I will provide in the Bibliography at the end of the essay. In other words, I must give a source even where I do not directly quote words from that source.

Avoiding Plagiarism

1. Taking notes

It is very dangerous to take notes by cutting-and-pasteing from things you read online. If you do make notes like this, then, at the very least put quotation marks around everything you insert from another place and make a note to yourself of its source. This is laborious but necessary. It is far better to make notes in your own words. Even if you download the source onto your laptop, notes in your own words can capture your understanding when the reading is fresh in your mind. You might read a paragraph and make a note to yourself if there is something there that could be useful in your essay and this, then, will be your understanding of the relevance of that part of the article you were reading. We might imagine note-taking as leaving a record for ourselves of what we understood when reading so that we can easily recover that understanding when later we need it again. No one remembers all they read and understand without such prompts. It is a sort of conversation with yourself, or at least with the future self who will read the notes at some later point. When you turn to your notes to compose your essay, it needs to be crystal clear to you which words are yours and which come directly from a source. Of course, in your notes you will need the full details of your sources so that they can be given in your bibliography. You will also want the page numbers for any sections of text you quote into your notes.

2. Writing your essay or assignment

Essays begin with a blank sheet and you have to compose your answer. You will want to show you have understood the question set and then you will draw upon your notes about your readings in order to compose your answer. It really will not do to copy paragraphs from online sources into your essay and then work at disguising this by swapping out certain words, or rearranging parts of sentences in a different order. Yes, these will in some sense be your words but it is not your understanding. You must read, understand and then explain. This is hard work and there is no short-cut. Start with your own words. How would you explain this to someone who had not read what you have read? You can go back to the sources for illustration and also to document where your ideas come from. But, start with your own understanding in your own words.

3. Collaborating with other students

It is a very good idea to talk about your essay with other students, even if they are not taking the same course. This helps you clarify your own ideas. Except in cases where group work is specifically required, however, the composition of the essay must entirely be your own. Remember, plagiarism is taking credit for work that is not your own. If you borrow chunks from another student’s essay you both may be complicit in cheating. This is also

called collusion. Of course, you may not ever submit work written by another person as if it were your own.

4. Using Turnitin

If you submit work via Moodle, it is very likely that you will be able to get a Turnitin report on your work. This will identify parts of your essay that have been seen elsewhere. There may be very good reasons for this. For example, the details of most of your bibliography is very likely to be found in other articles or essays so that these will be highlighted. Any quotations you include, even if you put them in quotation marks, will be highlighted but, provided you have given your source correctly (see A.1 above) and this does not make up too much of your total length of your essay (see A.2 above) there is no problem. Turnitin may suggest that various other common phrases (such as “central place theory” or “European agricultural history”) are not original to you. This also is not a problem. However, if you see chunks of your essay highlighted by Turnitin and you have not given a source and it is not a commonly used phrase, then, you should ask yourself if you have inadvertently copied into your essay something from a source you were reading. You will want to rephrase this to ensure that you are writing in your own words. A low “score” in Turnitin is no guarantee that there is no plagiarism in your work, particularly if you write your essay by copying into it chunks of text that you then amend. This is why it is so important to follow good practice in taking notes and composing essays.

Consequences of Plagiarism

The University has a clear and strict policy on plagiarism and you [can read it here](#). If a lecturer suspects that your work shows evidence of plagiarism, it will be reported to the Head of Department. The Head of Department will look at the work and review the concerns of the lecturer. If it looks like you are claiming credit for work that is not your own, then, the Head of Department will first determine whether you have been reported previously for plagiarism. If you have not been reported previously for plagiarism, either in Geography or elsewhere in the University, then, you will be invited to a meeting with the Head of Department. You will get an opportunity to explain how the appearance of plagiarism has arisen. If the Head of Department decides that this is a case of plagiarism you will be given the opportunity to submit a replacement assignment but that will have a cap of 40% to the mark it may be awarded. The Head of Department will make a report to the Registrar and you will then have a recorded case of plagiarism. If you have been reported previously for plagiarism, then, the Head of Department will prepare a report on the suspected plagiarism and this will be referred directly to the Registrar and ultimately to the Academic Discipline Board—the members of the Board are [given here](#). At this point, the Board will offer you a hearing to answer the case. After that they will make a determination of the facts of the case and in light of that may impose various penalties up to and including expulsion from the University.

16. ATHENA SWAN

The Athena Swan Charter is a national strategy to promote gender equality in higher education and was launched in Ireland by the Higher Education Authority in 2015. The Department of Geography has committed itself to the Athena Swan process of critical self-

assessment and after a rigorous application, we were one of the first departments at Maynooth to earn 'bronze status' two years ago. We are committed to this process of advancing gender equity and opportunity, which means that during the year we will offer workshops that you can participate in. You will certainly be asked to let us know how we are doing through the end of semester and year questions about the modules and teaching we offer. The responses are anonymised by the University Athena SWAN officer and then passed back to the Department where they are considered by our Athena SWAN Committee. Recommendations are then passed to the Head of Department, and discussed in our Undergraduate, Postgraduate and Research Committees, and at Staff Meetings.

In this, we are supported by the University with [its policies](#) addressing: the under-representation of women in higher administrative and academic offices in the university; the need to make campus a place where diverse gender identity and expression are respected, including for our transgender and gender diverse staff and students; and a data collection and analysis system that alerts us to the many complex dimensions of equality, diversity, inclusion and interculturalism. We know that gender and sexuality intersect with other forms of discrimination in society, including around race, class, physical and mental challenges, citizenship-status, and nationality. You know it too, and with your help we will learn how to make Maynooth University a leader in recognising the needs and sustaining the flourishing of the diverse community of our state. If you have questions or would like to participate, please contact our Athena Swan Committee Chair, Professor Karen Till, karen.till@mu.ie.

17. BULLYING AND SEXUAL HARASSMENT

Bullying and sexual misconduct are unacceptable at Maynooth University. Bullying is where repeated mistreatment of a person undermines their capacity to thrive at university. In a university setting, this includes, but is not limited to, ridiculing a person or making abusive remarks. Sexual misconduct includes any sexual contact that is unwanted or to which someone did not or was not able to give consent. In full confidence of your complaint being received respectfully, seriously, and in confidence, you may contact the Head of Department, Professor Gerry Kearns, gerry.kearns@mu.ie; or you may contact the Maynooth Student Union Vice President for Welfare and Equality, Ciarán Watts, welfare@msu.ie, (01) 708 6808, (087) 630 6433; the Student Services Centre, 01 708 3554; or Maynooth University Access Office, access.office@mu.ie, (01)708 4600. There are also support services for victims of sexual violence including the 24-hour Rape Crisis Centre, counselling@rcc.ie, 1 800 77 8888; the Student Health Centre, (01) 708 3878; and the Student Counselling Service, (01) 708 3554.

We want Maynooth University to be a place where our students can fulfil their potential and to do that we must treat other with respect. We must address the situations in which bullying and harassment can occur. We have committed ourselves to following the strategies offered as part of the [National Consent Framework](#) of the Department of Education and Skills. To make Maynooth a place that is safe, respectful, supportive and positive, there are a number of initiatives now underway. First, the university will host workshops about what consent really means. These will be offered to staff and to students over the coming years. These are based on a [programme](#) developed at National University

of Ireland Galway. Second the University will host a training programme to help us all learn how to intervene effectively when we see others suffering bullying or harassment. This programme is [based on one](#) developed by University College Cork. Staff and students can help our community by taking advantage of these workshops so that we all develop our awareness and make our commitment to a safe, respectful, supportive, and positive environment more effective. If you would like to be more pro-active still, you can volunteer for training to become a Facilitator for either the Consent Workshops or the Bystander Intervention Workshops by emailing equality@mu.ie.

18. SEMESTER ONE MODULES

Module name: GY652 Applied Climate Sciences

Credit Weighting: 10 ECTS

Learning Objectives: On successful completion of the module, students should be able to:

- Explain the key natural and human drivers of climate change
- Review the concepts behind modelling the climate system
- Assess why differences occur in both global and regional climate change scenarios
- Use, develop and apply statistical based modelling techniques to generate regional climate scenarios
- Discuss the impact of uncertainty in the science of climate change and climate modelling

Module Objective: Humans are no longer mere passive observers of environmental change but are now participants acting to shape our future environment. This module will encourage students to think critically about how one fundamental aspect of the environment, the climate system, is likely to respond. Students will be facilitated in developing a rigorous understanding of the fundamental principles and concepts of modeling the climate system. Students will also learn to apply this knowledge in assessing and developing global and regional climate change scenarios through the application of dynamical and statistical based models.

Module Content: This module explores the complex physical basis of climate change with an emphasis on understanding the key natural and human drivers of change. Students will be trained in the analysis of climate data in order to develop practical skills and knowledge of how to interpret a climate change signal. These skills will be further developed through the use and application of modelling techniques to generate regional climate scenarios, through the incorporation of user-friendly tools and software. The impact of aleatory ('unknowable' knowledge) and epistemic ('incomplete' knowledge) uncertainty in the science of climate change will also be explored through an assessment of uncertainties in climate models and emissions scenarios. The knowledge and skills developed during this module will be furthered by an exploration of the links between science, policy formulation and decision making.

Assessment: 100% of marks based on Continuous Assessment Project Work

Module Name: GY672 Analysing Spatial and Temporal Data using R

Credit Weighting: 10 ECTS

This module provides an introduction to the basics of data analysis, exploration and visualisation, with particular focus on spatial and temporal data. The module consists of a series of lectures including an introduction and start-up session to a take away practical exercise using the statistical programming language R. The module begins with basic methods to explore, describe and graphically represent one- and two-dimensional data, before moving on to consider more advanced methods to manipulate and visualise geographical information, and explore and identify trends and seasonal patterns in time series data. In addition, some methodological aspects of data analysis are introduced, in particular the use of open data and ‘citizen science’ data and the idea of reproducibility in data analysis.

Assessment:

1. Continuous Assessment 50%
2. End of year in-house exam 50%

Module name: GY655 Impacts, Adaptation and Mitigation

Credit Weighting: 10 ECTS

Learning Outcomes: On successful completion of the module, students should be able to:

- Distinguish a diverse range of potential and real climate change impacts.
- Identify and discuss issues surrounding these impacts and related policy approaches for their mitigation.
- Analyse the implications of modelling based projections of the enhanced greenhouse effect for Ireland and other parts of the world.
- Appraise options to mitigate global warming.

Module Objective: To raise awareness of climate change and related issues which impact on the world around us. Policy approaches will be addressed in relation to impacts and mitigation.

Module Content: Climate change is having both positive and negative impacts in many areas of our natural, social, economic and political world. This module is designed to equip students with knowledge and understanding on a diverse range of potential and real climate change impacts. Issues surrounding these impacts and related policy approaches for mitigation will be scrutinised. The implications of modelling based projections of the enhanced greenhouse effect for Ireland and other parts of the world will be analysed, as will options to mitigate global warming. This module will be delivered by several

academics working on specific impact areas. Possible topics to be incorporated into the module may include agriculture, soils, biodiversity, marine/coasts, pests, energy, transport, health, construction, tourism and planning.

Assessment: Continuous Assessment 100%

Research Tutorial (Semester 1 & 2)

This thesis support tutorial will provide students with:

- A strong grounding in the principles of research design in the physical sciences.
- An understanding of the implications of methodological issues and debates to research design in the physical sciences.
- An awareness of and practical competence in the identification and formulation of research questions in research in the physical sciences.
- An understanding of the basis of data collection including uncertainty
- Time management and organisational skills
- Experience in presenting ideas using oral and poster presentations.
- How to present materials effectively in different formats and to different audiences

Tutorial Content: considers the methodological steps involved in the design, data collection and analysis, and context of original research in climate science. The module includes an overview of research design and data analysis and includes practical workshops where students gain practical insights into the research process, including experience of different communication formats such as report writing, academic papers, dissertations and presentations. The geography research seminar series is a fundamental component of the course, introducing students to research methods from a suite of cross-disciplinary research areas.

19. SEMESTER TWO MODULES

Module name: GY663 Detection, Attribution and Decision Making

Credit Weighting: 10ECTS

Module Content

This module deals with key issues in climate science and in linking climate science with policy. The quality of climate time series underpins climate science, process understanding and making properly informed decisions. The module will introduce students to approaches to homogenising (quality assuring) climate data series using cutting edge software such as HOMER. Students will gain an appreciation of both the importance and challenges of constructing long term data series and recognise the important contributions that metadata and even citizen scientists make to the homogenisation process. Homogenous data series are important not only for detecting climate change signals but also for attribution. Students

will be guided through approaches to detecting and attributing changes in various time series from temperature and precipitation to river flows and will grapple with the associated challenge of attributing detected changes. Finally students will be introduced to contemporary approaches to decision making in linking climate science and policy with a particular focus on water resources and flood management.

Learning Outcomes

On completion of the module students will:

1. Show an appreciation and awareness of the importance of data homogeneity.
2. Have an ability to apply routine homogenisation software
3. Be able to detect trends in climatic variables for a various climate indices
4. Demonstrate understanding of the complexity of attribution of detected changes
5. Show critical appreciation of approaches to decision making and how models are employed in developing responses to climate change

Assessment: 100% Continuous Assessment

Module name: GY667 The Ocean and Climate Change

Credit Weighting: 10 ECTS

Module Content: Modern climate change, at its most fundamental level, is the consequence of the radiative imbalance caused by increased and increasing anthropogenic greenhouse gases in the atmosphere. This radiative imbalance causes an excess of heat to be trapped in the atmosphere, which is where the term ‘global warming’ arises. Over 90% of this excess heat trapped in the atmosphere has been stored in the ocean---in other words, ‘global warming’ could as accurately be described as ‘ocean warming’. Understanding the ocean’s response to climate change is key to understanding climate change itself. This course uses the IPCC AR5 report as the fundamental jumping off point for investigation of the ocean and climate change. The fundamental properties of the ocean (temperature, salinity, chemistry, freezing) are introduced first and threaded through the course to study ocean warming, salinity, sea ice, sea level rise and the ocean’s overturning circulation.

Assessment: 100% of marks based on Continuous Assessment Project Work

Module name: GY671 Field Course

Credit Weighting: 10 ECTS

Module Content: Fieldwork is often the most rewarding learning experience in the Physical Sciences. This module will comprise a set of field site investigations and follow up analysis work to allow a grasp of field investigation practice and the role of field based observation in data collection and critique.

Assessment: 100% of marks based on Continuous Assessment Project Work

MODULE NAME: GY660 THESIS

Credit Weighting: 30

Module objectives: Exploration of an original research project (7-13k words) under supervision of a staff member.

Module content: A written proposal outlining the research project; writing up the research; seminar presentations during the course of the year.

20. TEACHING AND SUPPORT STAFF CONTACTS

Academic Staff	Email	Phone	Room
Chris Brunsdon	Christopher.brunsdon@mu.ie	6149	ION- 2.19
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R = Rhetoric House; LB = Laraghbryan House; ION = Iontas Building

More details and departmental staff biographies are available at
<https://www.maynoothuniversity.ie/geography/our-people>