



Department of Biology

4th Year Handbook
Biological &
Geographical Sciences
2024-2025



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Maynooth University Biology Department:

Aims of the department

To enhance students' knowledge and understanding of important concepts in the Biological Sciences and to develop their analytical, practical and communication skills and appreciation of environmental and other bioethical issues.

Our commitment to equality, diversity, and inclusion.



The Maynooth University Biology department is committed to equality, diversity and inclusion. We are proud to have been the first department in the University to receive an externally validated Athena Swan Silver Department Award for our work toward promoting gender equality, diversity and inclusion within the Department of Biology.

Our goals in this area include supporting and advancing women's careers in Biology, promoting work-life balance in the department and address any gender equity or diversity issues within the department. We look forward to engaging with all members (students and staff) of the department as we implement our Gender Equality Action Plan. As part of this we will continue to seek input from the student population (through surveys and focus groups) and will endeavor to keep you informed of our progress in this area.

For more information on the Department of Biology's Gender Equality Action Plan, please see <https://www.maynoothuniversity.ie/biology/athena-swan> or contact Dr Mark Robinson (Biology Athena Swan Chair): Mark.Robinson@mu.ie

Biology Department Athena SWAN Committee.
September 2024

Information for Fourth Year Biological and Geographical Science Students 2024 – 2025

Please read this manual carefully and keep it safely so that you can refer to it during the year.

The biology staff extends a warm welcome back to all Fourth Years; we hope you will enjoy your final year with us and gain valuable skills and knowledge.

Important: This handbook provides guidelines and information for the Subject Biology, **only**, issued on behalf of the Department of Biology. For information regarding the Subject Geography in 4th year, please consult the 4th year guide issued by the Geography Department.

Academic Calendar 2024-2025 (see also page 32 for project deadlines)

First Semester	
Monday 23rd September	Lectures commence/compulsory introductory talk 11am Lab 1/Tea & Coffee with staff 3.30-5pm Biosciences foyer
Friday 11th October	Deadline for change of registration
Monday 28th October to Friday 1st November	Study week
Monday 4th November	Lectures resume
Friday 20th December	Conclusion of First Semester Lectures
Monday 23rd December to Friday 3rd January	Christmas Vacation
Monday 6th January to Thursday 9th January	Study Period
10-25th January	Examination period
Second Semester	
Tuesday 3rd February	Lectures commence
Monday 17th March to Friday 21st March	Study week
Monday 21st April to Friday 25th April	Easter Vacation
Monday 28th April	Lectures resume
Friday 9th May	Conclusion of Second Semester Lectures
Monday 12th to Thursday 15th May	Study Period
16th May-June	Examination period

Important notes about registration and your responsibilities.

Most final year students will have to amend their registration to reflect the allocation of projects etc after the first week of semester 1. You must make these changes to your registration in **the first THREE weeks of semester 1**. Other changes to lecture based modules in semester two can be made in the first two weeks of semester 2.

Changes **cannot be made after these deadlines**, and if you do not amend your registration appropriately, you may face allocation to modules you do not wish, or more seriously not being able to sit exams in modules you have taken.

4th Year Committee: The members will be Prof Kevin Kavanagh, Dr Jackie Nugent, Dr Paul Dowling and 5 fourth year students elected by the MSU (1 Single Honours, 1 Double Honours student and 2 Biological & Biomedical Science students, 1 Biological & Geographical student). The committee will discuss problems and matters of interest. If you have issues which you would like to be considered, you should tell your representative.

DEPARTMENT OF BIOLOGY STAFF CONSULTATION TIMES

Teaching Staff	Phone ext*	Room	E-mail	Consultation Time
Prof. Paul Moynagh <i>Head of Department</i>	6105	B3.15	fidelma.byrne@mu.ie	By appointment only
Dr. Özgür Bayram	6879	2.31	ozgur.bayram@mu.ie	Tuesday 11.00-13.00
Dr. Marion Butler	3856	B3.18	marion.butler@mu.ie	Monday 11.30-13.30
Dr. Jim Carolan	6367	2.29	james.carolan@mu.ie	Monday 11.00-14.00
Dr. Noreen Curran	3834	1.18	noreen.curran@mu.ie	Friday after lecture
Dr. John Devaney	7496	2.27	john.devaney@mu.ie	Wednesday 11.00 - 13.00
Dr. Tara Dirilgen	7261	F2	tara.dirilgen@mu.ie	Thursday 14:00-16:00
Dr. Paul Dowling	6368	2.35	paul.dowling@mu.ie	Tuesday 11.00-13.00
Prof. Sean Doyle	3858	1.24**	sean.doyle@mu.ie	Tuesday 10.00-11.30
Prof. Karen English	6290	B3.17	karen.english@mu.ie	Monday 14.00-16.00
Dr. David Fitzpatrick	Teams	1.26**	david.fitzpatrick@mu.ie	Monday 10.00-11.00
Dr. Emmanuelle Graciet	6255	B1.25	emmanuelle.graciet@mu.ie	Tuesday 10.00-12.00
Dr. Andy Hogan	6118	B2.16	andrew.e.hogan@mu.ie	Monday 11.00-12.00
Dr. Grace Hoysted	Teams	2.25	grace.hoysted@mu.ie	Tuesday 10.00-12.00
Prof. Kevin Kavanagh	3859	2.39	kevin.kavanagh@mu.ie	Monday 14.00-16.00
Dr. Lorna Lopez	Teams	2.36	lorna.lopez@mu.ie	Monday 10.00-11.30
Dr. Abigail Maher	6117	F6	abigail.maher@mu.ie	Tuesday 11.00-12.00
Dr. Joanne Masterson	6369	B2.17	joanne.masterson@mu.ie	Monday 14.00-16.00
Dr. Eoin McNamee	6148	B2.19	eoin.n.mcnamee@mu.ie	Monday 10.00-11.30
Dr. Conor Meade	6386	2.34	conor.meade@mu.ie	Wednesday 11.30-12.30
Dr. Sinead Miggin	3855	B3.14	sinead.miggin@mu.ie	Tuesday 12.00-13.00
Dr. Dania Movia	Teams	F1	dania.movia@mu.ie	Tuesday 12.00-13.00
Dr. Jackie Nugent	3857	B1.23	jackie.nugent@mu.ie	Tuesday 10.00-12.00
Dr. Shirley O'Dea	6480	F7	shirley.odea@mu.ie	Monday 10.00-11.30
Dr. Diarmuid O'Maoileidigh	Teams	B3.08	diarmuid.s.omaileidigh@mu.ie	Monday 10.00-12.00
Prof. Kay Ohlendieck	3842	2.33	kay.ohlendieck@mu.ie	Monday 12.00-13.00
Dr. Rebecca Owens	3839	2.30	rebecca.owens@mu.ie	Wednesday 10.00-12.00
Dr. Mark Robinson	Teams	B1.21	mark.robinson@mu.ie	Wednesday 14.00-16.00
Dr. Martina Schroeder	6853	B2.18	martina.schroeder@mu.ie	Monday 10.00-11.00
Prof. Fiona Walsh	7246	B1.24	fiona.walsh@mu.ie	Thursday 11.30-12.30

*Phone prefix: (01) 708 except numbers in red which are prefixed by (01) 474...

**=Located on ground floor Callan Building; F=Located in Foyer, 1st floor Callan Building; B=Biosciences & Electronic Engineering Building

The times when staff are normally available for consultation are given above. Appointments for other times must be arranged with individual lecturers. Staff with Teams listed under Phone No. can be contacted via Microsoft Teams.

Administrative Offices 2.40, 2.41 open daily: 9.30am-12.30pm; 2.30-4.30pm e-mail: biology.department@mu.ie

Programme Coordinators:

OMNIBUS SCIENCE:

BIOTECHNOLOGY:

SCIENCE EDUCATION:

BIOLOGICAL & BIOMEDICAL SCIENCES:

BIOLOGICAL & GEOGRAPHICAL SCIENCES:

INTERNATIONAL COORDINATOR

MAP (MATURE AND ACCESS STUDENTS) ACADEMIC ADVISOR:

POSTGRADUATE COORDINATOR:

MSC IN IMMUNOLOGY & GLOBAL HEALTH:

Dr. Jackie Nugent

Dr. Shirley O'Dea

Dr. Jackie Nugent

Prof. Kevin Kavanagh

Dr. Conor Meade

Dr. Paul Dowling

Dr. Joanne Masterson

Dr. Martina Schroeder

Dr. Sinead Miggin

For urgent matters please contact biology.department@mu.ie to make an appointment with the relevant Programme Coordinators.

Biology and Geography (Single Major) Course Outline: Biology

Induction Workshop

You must attend the 4th year Introduction talk on **Monday 23 September 11am Teaching Lab 1** where you will learn about your choices. The information below will be discussed in detail.

Course Structure and Module Credits

To qualify for the BSc degree award you have to obtain 60 credits for the academic year; 30 in Biology and 30 in Geography. To achieve the threshold of 30 Biology credits, you must take a combination of:

3 Compulsory Lecture-based Modules (5 credits each: BI406; BI435; BI451)

1 Seminar-based module (5 credits: BI420)

1 Research Project (10 credits: either BI453 or BI452* or BI450**)

*To qualify for module BI452 Prior Project, students must register with the Module co-ordinator prior to the beginning of the relevant work project.

** Places on module BI450 Data Internship are limited, and assigned by competition, please see details under the module description on page

Module Coordinators for Year 4 MH203 Biology Modules:

CODE	NAME	Coordinator	e-mail address
BI406	Behavioural Ecology	Abigail Maher	abigail.maher@mu.ie
BI420	Seminar Series	Ozgur Bayram	ozgur.bayram@mu.ie
BI435	Molecular Ecology and Biogeography	Conor Meade	conor.meade@mu.ie
BI450	Data Internship	Conor Meade	conor.meade@mu.ie
BI451	Global Food Security & Sustainability	Diarmuid O'Maoileidigh	diarmuid.s.omaileidigh@mu.ie
BI452	Biogeographical Prior Project	Conor Meade	conor.meade@mu.ie
BI453	Biogeographical Literature Project	Conor Meade	conor.meade@mu.ie

The delivery of all fourth-year modules is in-person. It is expected that all students will have access to a laptop and on occasion you will be required to have your own laptop for practical assignments and quizzes.

For information on several schemes to provide you with a laptop or financial assistance towards the purchase of one, please contact the Maynooth University Access Office access.office@mu.ie

SEMESTER 1 LECTURE MODULES FOR BIOLOGICAL AND GEOGRAPHICAL SCIENCES:

BI451 Global Food Security & Sustainability (5 credits; January Written Exam)

SEMESTER 2 LECTURE MODULES FOR BIOLOGICAL AND GEOGRAPHICAL SCIENCES:

BI406 Behavioural Ecology (5 credits; May Written Exam)

BI435 Molecular Ecology and Biogeography (5 credits; May Written Exam)

BIOLOGICAL AND GEOGRAPHICAL SCIENCES YEAR-LONG MODULES:

BI420 Seminar Series (5 credits; Year-long Continuous Assessment)

BIOLOGICAL AND GEOGRAPHICAL SCIENCES YEAR-LONG CAPSTONE PROJECT

Option 1:

BI453 Literature Project (10 credits, Continuous Assessment & Dissertation Submission in Semester II)

OR

Option 2:

BI450 Data Internship Project (10 credits, Continuous Assessment & Dissertation Submission in Semester II)

OR

Option 3:

BI452 Prior Project (10 credits, Continuous Assessment & Dissertation Submission in Semester I)

Biology and Geography Students -The Course in detail -

INTRODUCTORY LECTURE (compulsory):

MONDAY 23rd SEPT 11am-12pm: Teaching Lab 1 followed by an opportunity to meet peers and chat with lecturers 1 to 1 about capstone projects and the courses in general, in the foyer of the Biosciences building from **3.30pm**. This is a very important introduction to the year where the choices you have to make are explained to you.

BI420 Biology Research Seminar Series

The seminar series is a 5-credit module split over 2 semesters and is compulsory.

The module is composed of twelve compulsory 1-hour advanced research seminars presented in person by active researchers working in diverse areas of biology, including fungal biology, evolution/bioinformatics, immunology/cellular biology, plant biology and ecology. Speakers will be mostly from external institutions based in Ireland or abroad. Specific module content will change each year depending on the research areas of invited seminar speakers. The seminar series consists of twelve invited seminar speakers. Students taking BI420 are required to attend all twelve seminars. At the beginning of each semester, students will have the option to select a seminar on which they will be required to write a 500-word summary on the work presented at this particular seminar in each of the semesters (i.e. 2 abstracts/student will be marked for the module). In addition, the students will be required to outline

three questions they would have liked to ask the speaker on the content of the seminar. The reports will be marked by the host staff member and returned to the students with comments. The final mark will be an average of the 2 assessments. Attendance/listening is compulsory for each seminar unless a medical certificate is submitted on Moodle. Final grades calculated will be proportional to the attendance of the student (minimum 10 attendance).

All seminars are planned to be in person, an attendance sheet will be signed by each student. The aim of the module is for you to develop note-taking skills during a scientific seminar. You will compose an abstract for two seminars, which will help you to reflect on, and engage with, the content of the seminar. Two mandatory tutorials (October and February) will also be organized to provide guidance and feedback on note taking, writing a summary, and common mistakes to be avoided. The abstract should be typed and submitted through Moodle by 5pm on Thursday following the seminar. The word count should not exceed 500 words. Please use the template provided at end of manual, filling out your ***name***, ***student number***, ***staff name*** who will grade your work and ***degree course*** at the top of your write up. Also, state the ***speaker***, ***title of talk***, and ***date***. These are NOT included in your 500-word limit. The template is also available to download on the BI420 Moodle page. The first seminar is scheduled under BI421 (see table below).

Ozgur Bayram

INTRODUCTORY LECTURE: MONDAY 23rd SEPT 11am-12pm: Teaching Lab 1

Meet the staff Tea & Coffee: **MONDAY 23rd SEPT 3.30-5.30pm: Biosciences building foyer.**

DATE	TIME	PLACE	TITLE	GIVEN BY
Fri 4 Oct	1-2pm	JHL3	Accessing Information-Library	A. Ní Bharáin
Fri 11 Oct	1-2pm	JHL3	Plagiarism/Turnitin	C. Meade
Fri 18 Oct	1-2pm	JHL3	Thesis Writing	A. Maher
Fri 25 Oct	1-2pm	JHL3	BI420 Seminar Series Lecture 1	O. Bayram
Mon 25 Nov	11am-1pm	ARTSALT	Careers: Options with your degree and How to write a Science CV** (incl. introduction to career planning, postgrad study & employment)	A. Mooney
Mon 2 Dec	11am-12pm	ARTSALT	Postgraduate Studies	M.Schroeder

**There is an optional CV assignment at the end of the Careers lecture.

Capstone research project options

Your fourth year is a defining year in your studies. You build on the work of the previous years. Greater emphasis is put on using knowledge and understanding, rather than a simple accumulation of information. Consequently, poor academic practices, mis-use of AI and plagiarism are treated more strictly (see below).

As fourth year students you are ready to undertake a research project under the supervision of an active scientist. This forms a major part of your final year experience and mark. We describe these in detail at the introductory lecture and how to make your choice.

Students in Year 4 of the Biological and Geographical Sciences programme have **three** options for their final year research project. All students are eligible to enroll in module **BI453** Dissertation Project, and apply to complete a research dissertation under one of the thematic areas offered by supervisors, listed below. Students who have completed both ST201 AND ST203, or equivalent, are also eligible to apply for module **BI450** Data Internship Project. In 2024/25 there are two BI450 internships available. Eligible students who wish to apply for one of the BI450

internships should complete their application before 5pm on Tuesday 26th September. Guidelines for completing the application are provided below. **BI451** Prior Project is open to students who have arranged a summer vacation research position that is aligned with the module project requirements, agreed prior to the onset of the project with the module co-ordinator.

Remember: There is no “resit” option for capstone modules in the autumn exams as these modules require full year attendance and engagement. Failure or incomplete performance in these modules may require you to retake the year.

BI450 Data Internship

This project module combines the work programme of a traditional final year research project with the opportunity to work with an external research partner in the Environment arena. Focused on the in-depth analysis of data gathered in recent national surveys, project topics will vary from year-to-year based on agreement with our external partners. For 2024-25, the partner organisation for this module is the Environmental Protection Agency, based at Johnstown Castle, Co. Wexford. Entry to this module is **competitive**. The application procedure will be introduced at the Year 4 Induction Workshop, from 11am-12pm in Lab 1 on Monday 23rd September. Once students have been assigned a place, the year-long projects begin at the start of Semester I. A more detailed description of this module follows the section below on taught modules. [BI450](#)

BI452 Prior Project

This project module, which runs over the course of the academic year beginning in Semester I, provides an opportunity for students to use summer work placements (such as MU SPUR, etc.) as a basis for completion of a research project and dissertation. The dissertation will comprise a new set of analyses based on the original data collected over the summer, which have not previously been carried out. Within the project dissertation, students are expected to research and discuss the state of the art and context of the work, provide a full description of the summer data gathering and subsequent analysis work completed, and provide a detailed assessment, in context, in the form of a formal discussion. Applications for the module are completed on a designated BI452 application form, which will be circulated at the start of term. Additional literature research, and the project dissertation write up, begin at the start of Semester I. [BI452](#)

BI453 Literature Project

The BI453 module is a year-long research dissertation project, beginning at the start of Semester I. The topics will be set by the academic staff of the Department (see below). Topics will collectively cover a wide range of biological and ecological disciplines, with a focus on the overall themes of the MH203 Programme, and where possible the student will have an element of choice on the subject area, typically taking the broad topic set and refining it to a specific question. Individual topics will have a narrow enough focus to ensure a survey of the primary literature is appropriate. Projects will be assessed based on thesis write-up (70%), planning & development (10%) and a compulsory oral presentation (20%) on the research topic. Deadlines for submission are given in the table on page 32. A more detailed description of this module follows the section below on taught modules. This module is open to all year 4 MH203 students. [BI453](#)

Descriptions of BI453 Literature Project titles offered in 2024/2025

BI453 Biogeographical Literature Projects	
Supervisor	Indicative Title
Carolan, Jim (Applied Proteomics Lab.)	Insect salivary effectors
	The molecular basis of pesticide resistance in insects
	Plant defences against herbivorous insects
	The environmental impacts of glyphosate
Devaney, John (Forest Ecology & Global Change Lab.)	The relationship between tree diversity and forest-related ecosystem services
	The impact of invasive plant and animal species on natural and managed ecosystems in Ireland
	Methane emissions from trees; a new frontier in the global carbon cycle
Dirilgen, Tara (Terrestrial Ecology Lab.)	Linking aboveground and belowground diversity
	Urban soil biodiversity
	Nocturnal pollinators
	Bias in soil biodiversity literature
Graciet, Emmanuelle (Plant Biochemistry Lab.)	Plant acclimation responses and adaptations to flooding
	Integrated Pest Management (IPM) in agriculture and its roles to improve sustainability
	Methods and applications of priming to increase crop resilience to environmental stresses.
	Effect of flooding on the soil microbiome
Hoysted, Grace (Microbial Ecology Lab.)	Optimising symbiotic associations for sustainable agriculture
	The future of vertical farming
	Mechanisms of plant defence against insect herbivores
	Conservation strategies for endangered plant species
Meade, Conor (Molecular Ecology Lab.)	Climate Change and Erosion of Agricultural Soils
	Climate and Ecological Change in Australia during the Plesitocene
Nugent, Jackie (Plant Molecular Biology Lab.)	Arbuscular Mycorrhizal Fungi (AMF) and improving plant tolerance to environmental stress
	Plant perception and acclimation responses to increased ambient temperature
	Restoration ecology
	Plant responses and tolerance to salt stress
O'Maoileidigh Diarmuid (Plant Evolution & Genetics Lab.)	Golden rice: the technology and potential for addressing food security
	Impact of climate change on photosynthesis
	Angiosperms: Ubiquitous on Earth
	Variation in flowering time

DESCRIPTIONS OF LECTURE MODULES AVAILABLE 2024/2025

(SEE [Course Finder](#) FOR FULL MODULE DESCRIPTIONS)

You must register (and successfully complete) sufficient lecture modules to achieve 60 credits.

FAILURE TO ATTEND AND ENGAGE IN THE CONTINUAL ASSESSMENT COMPONENT OF A MODULE WILL HAVE A SIGNIFICANT EFFECT ON YOUR FINAL MODULE GRADE, AND MAY BE COMMENTED ON IN STUDENT REFERENCES

BI406 Behavioural Ecology

This module will enable students to develop an understanding of the adaptive value of behaviours to animals and how these behaviours evolve. Specific topics covered include the altered behaviour of parasitised animals (parasite manipulation and alternative explanations), optimal foraging (how animals make decisions about what food to eat and where to look for it) and a range of topics associated with reproductive behaviour (sexual selection, sperm competition, partitioning of reproductive effort between mating and parenting, mating systems, and sexual conflict). The overall objective is to understand how behavioural strategies contribute to animals' fitness. [BI406](#)

BI435 Molecular Ecology & Biogeography

This module considers the broad topic of natural history in a global context. Section 1 begins with a general recap on the principles of DNA variation, and how this understanding influences our reading of observed patterns of genetic variation in natural populations. We also consider the utility and application of molecular markers to understand inheritance, natural selection and genetic divergence using standard population genetics techniques. To support the development of our understanding, we consider a wide range of field examples, including case studies of gene-flow in the wild, including animal and wind-based dispersal patterns and gene flow between crops and wild plants. We also apply this knowledge to consider Conservation genetics of endangered mammals. In section 2, we review the theory of Plate-tectonics and the inferred dynamics of past climate cycles and glaciations. We then consider historical biogeography in the broad sense, and the tracing of historical migrations using nuclear, mitochondrial and chloroplast DNA markers; with special emphasis on the postglacial colonization of Europe by animals and plants and the biogeographic impact of continent collisions, illustrated by case studies of recent invasions in Europe and Tropical Central America and Southeast Asia. In each case we review evidence for dispersal waves, hybridization zones and extinction events. [BI435](#)

BI451 Global Food Security and Sustainability

This module aims to provide fourth-year undergraduate students with a comprehensive understanding of global food security and sustainability issues. Building on existing core knowledge and introducing a range of new study material, students will examine the challenges and opportunities for achieving sustainable food systems that meet the needs of a growing global population while protecting the environment. The module will explore topics such as the impact of climate change on food production, food waste and loss, food distribution and access, sustainable agriculture, and the role of technology in addressing food security. [BI451](#)

When should I email a lecturer about a module?

This communication guideline tells you tells you:

- how your lecturers and module coordinators will communicate with the class
- how your lecturers and module coordinators will communicate with individual students
- how students can best communicate with lecturing staff and with each other

1. General guidelines

- you should **indicate your name and student number** in any e-mail you send to a lecturer.
- you should always check that your question(s) has/have not already been answered in documents posted on Moodle and Teams, or in a previous e-mail or module announcement.
- regarding general questions on module content, seek to find module information on Course Finder first.

- unless an emergency, seek to contact lecturers and module coordinators during normal working hours.
- members of staff will do their best to answer new queries within 48h (working days). Allow 48h for a reply before contacting the same person or a different staff member in relation to the same query. If your query has already been answered in a previous e-mail or post, your reply will be of a low priority and take longer.

2. Class announcements by lecturers and module coordinators

Class announcements can be done using three platforms:

- e-mails to the class. We will always use your MU e-mail address.
- and/or lecturers' announcements on a specific module's Moodle page
- and/or using the chat function in a specific module page on Teams

Class announcements can be used by your lecturers to send reminders, but also to answer queries received by e-mail from individual students, if the query is relevant to the whole class. In this case, you may not receive an individual reply to your original e-mail. It is your responsibility to check e-mails regularly, Moodle and Teams as well. We encourage you to turn on automatic notifications. A lecturer or module coordinator may not prioritize replying to your e-mail if the answer is already available to the class. Read the class material first!

3. Lecturing staff communication with individual students

If a query received by e-mail does not affect the whole class, lecturing staff will do their best to answer to the student individually in a timely manner (e.g. within a couple of days). While we are happy to help you study and provide an environment that promotes learning, some queries are not acceptable and cannot be answered.

4. What queries are NOT acceptable?

- asking for answers or corrections to previous exam questions. This query is not acceptable, because it is your work that is assessed and so your submissions need to reflect your own writing, ideas, and thoughts.
- asking for details of calculation, answers or corrections for lab-write ups or theses before these are handed in. This query is not acceptable, because it is your work that needs to be assessed. Practical-related questions should be asked to demonstrators or lecturers during the lab sessions (in teaching labs or on Teams). Technical and project queries can be resolved in meetings with your project supervisor.
- demonstrators should not be asked to provide details of calculations or to pre-correct your lab write ups at any time. All questions to demonstrators should be asked during the during the lab sessions (online or in teaching labs).
- asking for slides or lecture notes of a module that you are not registered for.

5. Communication among students in a class

Students in a class can use multiple 'official' platforms to communicate among themselves. We encourage these because they foster group work and mutual help. Posts and communications on different platforms (Moodle, Teams, e-mails) should be linked to the course/module, courteous and respectful. Note that these platforms are accessible to the whole class, including lecturers.

Platforms available:

- Class discussion forum on a specific module's page on Moodle Or
- Teams chat on a specific module's Teams group.

Communications to lecturers that do not include your name, student number (and preferably subject code) risk being missed and unanswered. Communications in the days immediately prior to deadlines and exams, should be specific and brief. Answers are likewise likely to be very brief during these periods.

DEPARTMENT OF BIOLOGY STAFF RESEARCH INTERESTS

Name & Qualifications	Key Words	Research Interests
Dr O. Bayram, MSc PhD	Secondary metabolism, Fungal foods, Mycotoxins, Fungal development, Cell signalling, Epigenetics, Environmental remediation	https://www.maynoothuniversity.ie/biology/our-people/ozgur-bayram#2
Dr M.P. Butler BSc PhD	Ovarian Cancer, Mechanistic insight into diseases, Toll-like Receptor Signalling, sex differences in immune responses.	https://www.maynoothuniversity.ie/biology/our-people/marion-butler#2
Dr J.C. Carolan B.A. (Mod) PhD	Proteomics, Mass Spectrometry, Genomics, Molecular Biology, Sustainable Agriculture, Aphids, Bumblebees, Crop-pest Interactions, Pesiticides	https://www.maynoothuniversity.ie/biology/our-people/james-carolan#2
Dr J. Devaney BSc PhD	Ecology, Forest Ecology, Climate Change, Biodiversity-Ecosystem Function, Invasive species	https://www.maynoothuniversity.ie/biology/our-people/john-devaney#2
Dr. T. Dirilgen BSc PhD	Ecology, Biodiversity (aboveground and belowground), Soil-Plant-Pollinator interactions, Soil biology and ecology, Sustainability	https://www.maynoothuniversity.ie/people/tara-dirilgen
Dr P. Dowling BSc PhD	Oncoproteomics, Biomarkers, Detection, Biofluids, Mass Spectrometry	https://www.maynoothuniversity.ie/biology/our-people/paul-dowling#3
Professor S. Doyle BSc PhD	Disease diagnosis, Antimicrobial resistance, <i>Aspergillus fumigatus</i> , protein mass spectrometry, proteomics, nonribosomal peptide synthesis, Disease diagnosis, immunoassays and enzymology.	https://www.maynoothuniversity.ie/biology/our-people/sean-doyle#2
Professor K. English MSc PhD	Cellular therapy, mesenchymal stem cells, immune modulation, pre-clinical models of inflammatory disease, organ transplantation, acute respiratory distress syndrome, asthma, gene therapy, muscular dystrophy	https://www.maynoothuniversity.ie/biology/our-people/karen-english#2
Dr D.A. Fitzpatrick BSc PhD	Computational Biology, Bioinformatics, Genome Evolution, Phylogenomics, Comparative genomics, Genomics, Transcriptomics, Proteomics, Genome sequencing, Fungi, oomycetes.	https://www.maynoothuniversity.ie/biology/our-people/david-fitzpatrick#2
Dr E. Graciet MSc PhD	Protein degradation, biochemistry, plant molecular biology, plant-pathogen interactions, abiotic stresses, crop improvement	https://www.maynoothuniversity.ie/biology/our-people/emmanuelle-graciet#2
Dr A. Hogan BSc PhD	Immunology, obesity, cancer, metabolism, immunometabolism, immunptherapy	https://www.maynoothuniversity.ie/biology/our-people/andrew-hogan#2
Dr. G. Hoysted BSc PhD	Fungal Ecology, Microbial Ecology, Mycorrhizal fungi, Plants, Bacteria, Above-below ground interactions, Plant-insect interactions, Sustainability	https://www.maynoothuniversity.ie/people/grace-hoysted
Professor K.A. Kavanagh BSc PhD	<i>Aspergillus</i> , <i>Candida</i> , Fungi, Metal-cell interactions, Innate immunology, Insects, Proteomics	https://www.maynoothuniversity.ie/biology/our-people/kevin-kavanagh#3

Dr L.M. Lopez BA PhD	Genomics, Human Health, Circadian Rhythms, Sleep, Neurodevelopmental Conditions.	https://www.maynoothuniversity.ie/biology/our-people/lorna-lopez#2
Dr A.M. Maher BSc PhD	Entomopathogenic nematode, microbes, symbiosis, biodiversity	https://www.maynoothuniversity.ie/biology/our-people/abigail-maher#2
Professor B.P. Mahon BSc PhD	Cell Biology, Immunology, microbiome/immune interaction	https://www.maynoothuniversity.ie/biology/our-people/bernard-mahon#2
Dr J. Masterson BSc PhD	Allergy, Inflammation, Epithelial Cell Biology, Stem Cells, Fibrosis, Mucosal Barrier, Cellular Metabolism	https://www.maynoothuniversity.ie/biology/our-people/joanne-masterson#2
Dr E. McNamee BSc MSc PhD	Autoimmunity, Mucosal Immunology, Translational Immunology, Chemokines, microRNAs	https://www.maynoothuniversity.ie/biology/our-people/eoin-mcnamee#2
Dr C. Meade BSc PhD	Plant & Soil Ecology; Molecular Ecology; Phylogeography, Biogeography & Population Genetics; Sustainability	https://www.maynoothuniversity.ie/biology/our-people/conor-meade#1
Dr S. Miggin MSc PhD	Innate immunity, toll-like receptors, inflammation, Type-2-Diabetes, bovine reproduction	https://www.maynoothuniversity.ie/biology/our-people/sinead-miggin#2
Dr D. Movia MSc PhD	In vitro alternatives to animal models, non-animal preclinical research, new approach methodologies, lung cancer, respiratory research, nanomedicine	https://www.maynoothuniversity.ie/faculty-science-engineering/our-people/dania-movia
Professor P. Moynagh B.A. (Mod) PhD	Molecular Immunology, Inflammation, Inflammatory Diseases, Signal Transduction,	https://www.maynoothuniversity.ie/biology/our-people/paul-moynagh#3
Dr J.M. Nugent MSc PhD	Plant molecular biology, evolution and development	https://www.maynoothuniversity.ie/biology/our-people/jackie-nugent#3
Dr S. O'Dea BSc PhD	Cell therapy, cell engineering, cancer research	Shirley O'Dea Maynooth University
Dr D. O'Maoileidigh BSc PhD	Plant development, flower development, fruit development, photosynthesis, transcription factors, genomics	https://www.maynoothuniversity.ie/people/diar-muid-omaoileidigh
Professor K. Ohlendieck DipBiol PhD DSc	Skeletal muscle biology, protein biochemistry, proteomics, biomarker discovery	https://www.maynoothuniversity.ie/biology/our-people/kay-ohlendieck#3
Dr N. Curran BSc PhD	Plant Biology	https://www.maynoothuniversity.ie/people/nore-en-curran
Dr R. Owens BSc PhD	Pathogenic fungi, secondary metabolites, proteomics, antimicrobial agents, food proteins	https://www.maynoothuniversity.ie/biology/our-people/rebecca-owens#3
Dr M. Robinson BBioMedSc PhD	Cytotoxic natural killer cells, liver disease and cirrhosis, chronic inflammation, glycosylation of lymphoid immune cells	https://www.maynoothuniversity.ie/biology/our-people/mark-robinson#2
Dr M. Schroeder BSc PhD	Host-Pathogen interactions, Pattern recognition receptor signaling, Regulation of gene expression, RNA Biology	https://www.maynoothuniversity.ie/biology/our-people/martina-schroeder#2
Professor F. Walsh BSc PhD	Antibiotic resistance, microbiomes, infectious diseases, bacteriology, metagenomics	https://www.maynoothuniversity.ie/biology/our-people/fiona-walsh#2

GUIDELINES FOR UNDERGRADUATE DISSERTATION MODULES (BI453)

The literature project prepares you to discover scientific literature, synthesise, analyse data and to use data to make decisions and recommendations. Your aim is to research literature in an area and discuss the topic under consideration, including reference to opposing views on the subject where appropriate. Your supervisor will allocate you to a broad topic, but you must refine this into a specific focus typically as a question. The thesis should not be simply a reproduction of information from review articles or book chapters, but should include your interpretation of the subject, organised to develop the reader's understanding as you think appropriate and written with authority, by one who understands the evidence and issues.

The thesis should be broken into sections which should have a *General Introduction*, *Discussion* (should be broken into subsections with appropriate subheadings for sections dealing with different topics), *Conclusions* and *References*. The Conclusions should draw together the discussion points made during the discussion. At the end of the assignment, you should understand your topic fully and be capable of presenting the findings and defending your conclusions at a seminar/oral on your thesis topic. Additional advice material for academic writing can be found at [Academic Writing Support](#) and at [Starting the Process - Academic Writing - LibGuides at National University of Ireland, Maynooth](#).

Your literature research project will provide you with an opportunity to develop expert understanding in a particular aspect of natural environment research. Your dissertation also gives examiners and prospective future employers an indication of your ability, your style of work and your initiative. Completing a research essay involves a significant level of commitment and engagement, perhaps greater than any other work you have completed to date, but it is important to give due attention to the other parts of your course also, as all modules contribute to your final grade for 4th year. For this reason it is important to plan your schedule and make time to complete all the work that is required over the coming year.

The components that are assessed in your research dissertation are as follows (further details below):

-Submitted Essay Main Text (70% of Marks)

-Thesis Oral Presentation (20%)

-Thesis preparation and development (10%)

THE BI453 LITERATURE PROJECT IS NOT TO EXCEED 5,000 WORDS. The dissertation **word count** includes the main body text of the thesis, comprising headings, text and in-text citations/ references. Not included in the word count is the abstract (which has its own separate word limit of 200 words), table of contents, table legends and table text, figure legends, bibliography/ reference list, and appendices.

Additional information on formatting requirements for your essay is provided at the end of this section.

BI453 The Written Component (70% of Marks)

All capstone projects have at least one significant written component for assessment. A key learning objective for undergraduate thesis modules at the MU Biology Department is that you develop a sense of ownership and responsibility for your dissertations/projects. In supervisor-student relationships during the preparation of theses, responsibility is two-way. You will have expectations in terms of support and advice from the supervisor, and a supervisor will have expectations regarding independent research by you, time-keeping, regularity of work and

reporting, etc. In the end, it is your dissertation/project, you are expected to take full responsibility for researching, writing and editing your own work.

Note: The following guidelines relate to staff-student interactions in preparation of all written theses. Additional specific guidelines for Literature and Laboratory projects, respectively, are provided below.

WRITING A 4TH YEAR DISSERTATION/THESIS: ESSENTIAL INFORMATION FOR ALL WRITTEN WORK

Your Responsibilities

The goal of the dissertation/thesis is to show you have developed higher order thinking in synthesizing, analysing and evaluating complex scientific material. You have to demonstrate the skills that you have developed over your previous years of study. It is essential that what you write is your own work and not a copy of someone else's work (plagiarism) or work written by someone else (essay mills) or by artificial intelligence (eg ChatGPT). To assist with this task, we provide you with several important aids:

- (i) a central writing webpage (**Thesis Online Resources**, accessible on your Moodle thesis module page and the [All Biology Students 2025](#) Moodle page where you will find multiple online resources to assist with completing your dissertation, including the many services offered by MU);
- (ii) an online self-assessment tool 'Turnitin' (see below); and
- (iii) a clear guide to what is, and is not, acceptable in terms of originality: *the Maynooth University Department of Biology Plagiarism policy* (see below).

Please familiarise yourself with all of the above and remember - it is mandatory to follow the guidelines for turnitin and plagiarism. You must not use any AI or LLM tool (eg Grammarly, ChatGPT etc) to prepare your thesis.

Thesis Preparation.

For the BI453 literature project 10% of your final mark is awarded for your demonstration of progression and development over the duration of the project. Details below.

Literature Searching.

Use the thesis Online resources for more guidance on how to search for peer-reviewed material or scientific information search engines. You must exercise caution when using or citing material that is not peer-reviewed as it can be subjective and biased. You should note that scientific articles are often presented as follows: Abstract, Introduction, Materials & Methods, Results and Discussion References. Some search engines will only give access to abstracts and you may then have to get the entire article either from the library (paper or internet access to journals) or by inter-library loan. You should deposit the complete reference pdf in your TEAMS folder. The material presented above is for quick reference only.

Assessment Criteria

Your lecturers use the criteria below to grade your oral work using the scale described on page 36. These measure how well you have built on your writing skills developed in earlier years. For final year work the emphasis shifts from writing process/skills (25%) which you have developed in years 1-3, towards critical engagement/higher order thinking/ understanding (75%)

Skill/Competence demonstrated in written material
Writing Process Skills/Composition (25%)
Writing Process (Structure/format as per guidelines, composition -spelling, grammar, use of passive voice) 10%
Writing Skills (abstract) 5%
Writing Skills (referencing & citation) . (appropriate in text citation, correctly formatted bibliography, source material acknowledged) 10%

Critical engagement & demonstration of understanding /higher order thinking (75%)

Understanding/ Use of evidence. (Breadth of survey/Adequacy of introduction, active comparison source material) **15%**

Understanding/ Use of evidence including hypotheses/research directions or trends in the current literature. **10%**

Analysis/ Relevance (including analysis of experimental approaches & methodologies) **10%**

Analysis/Relevance (evaluation and relation to findings in field) **15%**

Narrative structure & evidence of personal input Clarity/cohesiveness of Conclusions & Discussion; Logic and structure of narrative, evaluation of findings) **(25%)**

BI453 The ORAL Component (20% of Marks)

For all Capstone projects you have to make a 12-minute, in-person, presentation, with an additional 5 minutes allowed for questions. Oral presentation is a **compulsory** part of your degree and necessary to show that you have developed communication and presentation skills for complex topics, as well as to verify your understanding. **It cannot be delivered on TEAMS or remotely.** If you are hospitalized, or have a registered disability (with the University disability office), and consider that this might hamper your oral presentation, then please inform your supervisor at the **start of your project** who can discuss reasonable accommodations to help you. If you are not registered with the disability office, or have other issues, please engage in early communication with your supervisor who can direct you to supports available. All students are expected to meet the established assessment criteria and fulfil the required academic work and this includes the in-person oral presentation. If something goes wrong on the day or you are nervous, don't worry your supervisor has experience and clear guidelines to help you complete it successfully.

The audience for your oral will include the supervisor, one other member of staff, other fourth-year project students and possibly other research workers (postgraduate and postdoctoral fellows) from the relevant laboratory. You are required to e-mail your presentation (usually in PowerPoint form) to your supervisor at least one day before your talk. Your supervisor will prepare your presentation for the computer projector. If you have any questions about how to deliver your talk, please contact your project supervisor, alternatively more information on improving your oral presentation skills can be found online¹². If your presentation is too large to e-mail as an attachment, please send it via HEA filesender: <https://www.heanet.ie/services/hosting/filesender>

Assessment Criteria for 4th year Oral presentations

Your lecturers use the criteria below to grade your oral work using the scale described on page 36. As stated earlier, your oral **demonstration of understanding and higher order thinking skills** (ability to synthesise material, analyse data and evaluate meanings) are what is being assessed. So, prepare well with these in mind.

Skill/ Competence demonstrated in oral presentation

Relevance of material/content presented orally (facts, examples, published work) **15%**

Demonstration of understanding material. (synthesis, analysis, evaluation) **20%**

Organisation of material (logic, coherence, structure) **15%**

Timekeeping **10%**

Quality of presentation **10%**

Clarity of presentation **10%**

Questions **20%**

¹ Hartigan L & Higgins M. How to prepare and deliver an effective oral presentation *BMJ* 2014; 348 doi: <https://doi.org/10.1136/bmj.g2039>

² Bourne PE. Ten simple rules for making good oral presentations. *PLoS Comput Biol* 2007;3:e77

BI453 Thesis preparation and development (10%)

After your initial discussion with your supervisor, you will be assigned a unique secure folder on TEAMS. **You will be assessed on the contents of this folder (10% project mark)** and should demonstrate steady progress throughout the course of the module. In this folder you must keep:

- A pdf copy of every source paper you cite in your thesis/dissertation. Thus you will accumulate a library of papers to be used in your thesis. A steady accumulation of papers that correspond to your bibliography will be marked highly, whereas a last minute deposition will be marked down. Fake references or references cited in your work but not present in your folder will be penalised.
- Drafts of your thesis every 2 weeks (time stamped). This creates a digital paper trail that can be used as evidence against your use of AI. Again demonstrating steady progress will be marked highly, whereas a last minute deposition of a finished thesis will be marked down.

Creating, Evaluating and Submitting your Essay Content on Moodle

Essay Preparation and Submission – the *Turnitin* facility

As you will know from BI305 in third year, all Biology dissertations at Maynooth University must be submitted to the online *Turnitin* Facility on moodle.

Please note

1. The onus is on you to validate your work using *Turnitin*.
2. You should submit your completed work only once you have checked it on *Turnitin* and are satisfied that your written work is truly your own and not a copy of something else
3. Submitted dissertations or theses that are deemed to contain copying/ plagiarism or to have features of AI (eg ChatGPT) use will be dealt with according to the departmental policies on plagiarism and academic integrity (see page 23)

How to use *Turnitin* on Moodle - Recap

There are two steps to using *Turnitin* on Moodle. Once you have signed up for your Literature Review/ Laboratory Project Module, you will be able to access the *Turnitin* portal via the appropriate module page on Moodle. *Turnitin self-check* will be available on your dissertation module Moodle page throughout semester. In addition, each student also has an independent self-check facility supported on their personal moodle interface. Both facilities perform the same function. *Turnitin final submission*, available only on your dissertation moodle page, will be available from two weeks before the final submission date.

Step 1. During essay **preparation** – use *Turnitin self-check*

Submit your draft essay to *Turnitin self-check* to get an originality report and revise as appropriate.

Step 2. When your essay is **complete** - use *Turnitin final submission* before the submission deadline

The final originality report (and an AI detection report) for this submitted copy will only be available to your essay supervisor.

Final Submission of your Thesis

You are required to submit your thesis as an online document only. Your thesis must follow the text and composition guidelines for your specific essay module (see detailed description of the 4th year dissertation module relevant to you, below). We have introduced a new **2024/25 Dissertation Cover Page**, which is available to download on your moodle dissertation page. This must be inserted as page 1 in your final (.doc or .pdf) dissertation submission document.

For **Turnitin self-check** you should **only** upload, as a single (.doc or .pdf) document:

1. Abstract
2. Main Body text, including subtitles/ sections, figures, tables, legends and in-text citations. For Research Projects, this section includes materials and methods, results & discussion (see below)

For **Turnitin Final Submission** you should **only** upload, as a single (.doc or .pdf) document:

1. 2024/25 Dissertation Cover Page
2. Abstract and Essay Title
3. Table of Contents (if included)
4. Main Body text, including:
 - a. Section and subsection titles (Literature Projects)
 - b. Materials and methods, results & discussion (Research Projects, see below)
 - c. All figures & legends
 - d. All tables & legends
 - e. All in-text citations
 - f. Full Bibliography
 - g. Appendices

At all times during the preparation of your dissertation you can access 'Turnitin Help for Students' on moodle at [Moodle Help for Students](#).

For **Turnitin problems**, you can contact Moodle Support for further assistance at moodlesupport@mu.ie

Formatting Requirements, Ethical Regulations and Technical Guidelines for the process of writing your Dissertation

The thesis should be broken into sections which should have a *General Introduction, Discussion and Broader Exploration of the Topic* (should be broken into subsections with appropriate subheadings for sections dealing with different topics), *Conclusions* and *References*. The Conclusions should draw together the key points of argument made during the discussion. At the end of the assignment, you should understand your topic fully and be capable of presenting the findings and defending your conclusions at a seminar/oral on your thesis topic. Additional advice material for academic writing can be found at [Academic Writing Support](#) and at [Starting the Process - Academic Writing - LibGuides at National University of Ireland, Maynooth](#).

Technical and Formatting Guidelines

Quotations. In general, use direct quotations only where the wording matters to your case, and always credit the author e.g. "Rowan (1932) described the elytra 'in all cases strongly grooved and colourful' but later work (Dods, 1946; Frish, 1983) suggests that the grooving is quite variable and in some cases the elytra are more dull than Rowan thought". It is not acceptable to transcribe large tracts of text from reviews or journal articles. Write your literature survey in your own words.

Reference Material. Familiarize yourself with the background literature relating to the project. As suggested above, go to the Dissertation [Thesis Online Resources](#) link you will find multiple resources to help with your initial literature review, as well as training options within MU regarding critical skills in *researching the scientific literature, writing, and referencing/citation*. You should discuss the outcome of your literature review with your supervisor approximately 3 weeks after beginning the project. Your supervisor may provide you with additional resources if you

have been unable to access them. Deposit pdf of every paper you cite in the TEAMS folder assigned to you by your supervisor.

Referencing. It must be possible to identify the source of all material which is not your own. The MU Biology Department uses the [Harvard referencing style](#), and all dissertations **must** be written in this format. All references should be given fully, and in alphabetical order, in the reference list at the end of the literature survey.

Typing. Always use a spell-checker. Recommended font is Times New Roman (size 12). The thesis should be double-spaced.

Diagrams. Should be created by you. Where based on published illustrations/data these should be re-drawn by you to demonstrate the point you wish to make. The legend should contain a credit e.g. "Re-drawn from Adams (1989)", and of course Adams will appear in the reference list at the end. If, for instance, your point concerns a few chemical groupings on a large molecule, you might consider using lines to pick out all or part of the overall shape of the molecule and draw in more fully the few groups that are essential to your discourse. State in the legend any software used to create the diagram (e.g. Biorender)

Material beyond your competence. Where your presentation carries you into e.g. advanced mathematics or chemistry that you cannot reasonably be expected to master; deal only with the conclusions as set out by the author.

Complex original ideas. Some topics allow you to develop ideas of your own. You may like to discuss them with your Supervisor before incorporating them in your essay.

Dissertation Cover Page

When submitting your literature project you will be required to sign a declaration on the **2024-25 Dissertation Cover Page** stating that you have read and understand the department's Policy on Plagiarism, and that your project is your own work. (Please see the sample Cover Page below). The cover page for your relevant dissertation module will be available for you to download from your dissertation moodle page. This must be downloaded, signed and placed as page 1 of your final submission dissertation.

Ethical Obligations

Advice on AI /software tools to assist your writing.

The process of writing a dissertation is perhaps the most important act of learning that you can complete at University. In addition to providing a gateway for you to achieve a new level of excellence in your knowledge, writing a research essay also helps you develop the most important attribute of a university graduate: the capacity to independently scrutinise and discuss information. Choosing to deploy technical tools that help avoid the **work** of research is cheating, and deprives you of the opportunity to develop as a professional scientist and researcher. What is more, cheating makes you less employable – even if you avoid detection – because sooner or later your future employer will discover that you are not the graduate you claimed to be on your job application. For this reason at MU Biology we strongly emphasise the ethical aspects of your approach to research, in addition to disciplinary supports that help protect the academic integrity of all students.

You **must not** use AI or large language models in any way to assist your thesis/dissertation. The department currently uses sophisticated tools to detect the use of these tools in the preparation of written material. As with Turnitin, *these detection tools exploit the algorithm limitations of AI models, and reliably identify the patterns of language associated with mathematical models*. Use of AI or material that has features typical of AI will be subject to additional verification assessment by the academic integrity committee as detailed below page 22. Similarly, you are

not allowed to use paraphrasing or summarising tools such as (but not limited to) Grammarly. You are also strongly advised not to use *MyBib* for citation/bibliography construction. Instead use the software provided free to students by the University such as Endnote, Mendeley etc. Use the skills you have developed in earlier years and advice from your supervisor.

You are recommended to use

- PubMed or other reputable portals to find primary literature
- Endnote, Mendeley or the citation manager embedded in MS Word to manage and format your references. Free versions are available to all MU students via this [link](#) and you should have learned to use these in your third year courses (e.g. BI305). Avoid MyBib as a reference tool.
- BioRender may be used to create diagrams or other similar software where you create the material (but not an AI tool). State the tool used in a figure legend.
- Excel, Prism or similar programmes may be used to prepare graphs and figures and perform appropriate statistical analyses.

Supervisor Meetings

In the week following the assignment of topics, students will contact their supervisor to arrange a first meeting. Further meetings will be arranged by agreement.

Role and Responsibilities of Supervisor

- To set the essay/ project topic and provisional title
- To set up a folder in Microsoft TEAMS for each student supervised
- To provide general background information on the subject area including some starter references and deposit pdf of these in the student's TEAM folder
- To inform student of expected standard of research and citation (e.g. the Harvard format)
- To brief student on the importance good essay structure, and provide feedback to the student later in the process regarding their proposed essay title, focus and structure, and to inform the student of the consequences of using AI or plagiarism
- To inform student of likely challenges in terms of planning and deadlines
- To make clear to the student that further reasonable contact (e.g. attendance at lab meetings) is welcome, including additional meetings as the student progresses with their work

Role and Responsibilities of Students

- Following the first meeting with your supervisor, to read around the broad topic and inform Supervisor of your chosen essay title (if applicable).
- To deposit in your TEAM folder **all of the material you cite as pdf**, and drafts of your thesis every 2 weeks (time stamped).
- To understand the University policy on Plagiarism and Academic integrity, and to present and discuss only your own work or that supported by a citation
- Consider seriously the advice and recommendations of the supervisor regarding research work, citation and time management
- Understand that the supervisor is there to assist with the task of completing a dissertation to standard and on time through advice which you should follow
- Understand that it is not within the remit of the supervisor to correct any essay or project dissertation text prior to submission.

PLAGIARISM & THE 4TH YEAR RESEARCH THESIS- Your responsibilities:

Your thesis will inevitably draw on the work of others. The effective use and evaluation of existing material are among the skills that you are expected to develop in University. In all cases, when you build on the work of others you must cite the source of the material (an idea or opinion, a quote, data, diagrams etc.). It must be acknowledged in a standard form of referencing. Details of the referencing format are given above but here are some practical tips to help you:

1. You must present a work of scholarship in your own words and diagrams.
2. If you state a fact or rely on data from another source, you must acknowledge that source in the form of a citation in the text. Citations must be listed in a bibliography/reference list. The only exceptions are “common knowledge” where citation is not needed e.g. “The leaves of many plants are green” or “Whooping cough is a childhood respiratory disease” or “Glucose is a six Carbon sugar”. Such knowledge is ubiquitous and does not need citation. Knowing when or when not to cite is a skill you can demonstrate in your thesis.
3. If you use a diagram or figure from another person’s work, you must cite this in the legend and the bibliography. Do not reproduce the copyright material of others without permission.
4. If the exact words used by someone else are important to your argument, then you may use these within quotation marks and must cite the source. Be sparing in using direct quotes, only do so when the precise wording is essential.
5. If you have paraphrased someone else’s argument, data or conclusions, then this must be acknowledged by citation.
6. Paraphrasing that dominates your work, does not include your own intellectual input or is simply a rewrite of another person’s effort is still plagiarism, even if you do use citations. You must provide an intellectual input that adds to the existing material. This point is particularly relevant to students wishing to follow postgraduate study. It should be a warning that your approach is poor if you find yourself changing words to get your Turnitin score lower.

In summary, your work will rely on the work of others. You should understand that material and think about it. **Use your own words to describe the essential point that is relevant** to your thesis, and cite your source in the text as well as the reference/bibliography section. If you are worried about what constitutes plagiarism, contact your project supervisor.

When submitting in your literature/laboratory project you will be required to sign a declaration, on your 2024/25 Dissertation Cover Page, stating that you have read and understand the department's Policy on Plagiarism, and that your project is your own work. Please see the sample Cover Page available for you to download from your dissertation moodle page.

This must be downloaded, signed and placed as page 1 of your final submission dissertation.

Department of Biology Policy on Plagiarism and Use of AI tools

Definition of Plagiarism

Plagiarism involves an attempt to use an element of another person’s work, without appropriate acknowledgement in order to gain academic credit. It may include the unacknowledged verbatim reproduction of material, unsanctioned collusion, but is not limited to these matters; it may also include the unacknowledged adoption of an argumentative structure, or the unacknowledged use of a source or of research materials, including computer code or elements of mathematical formulae in an inappropriate manner.

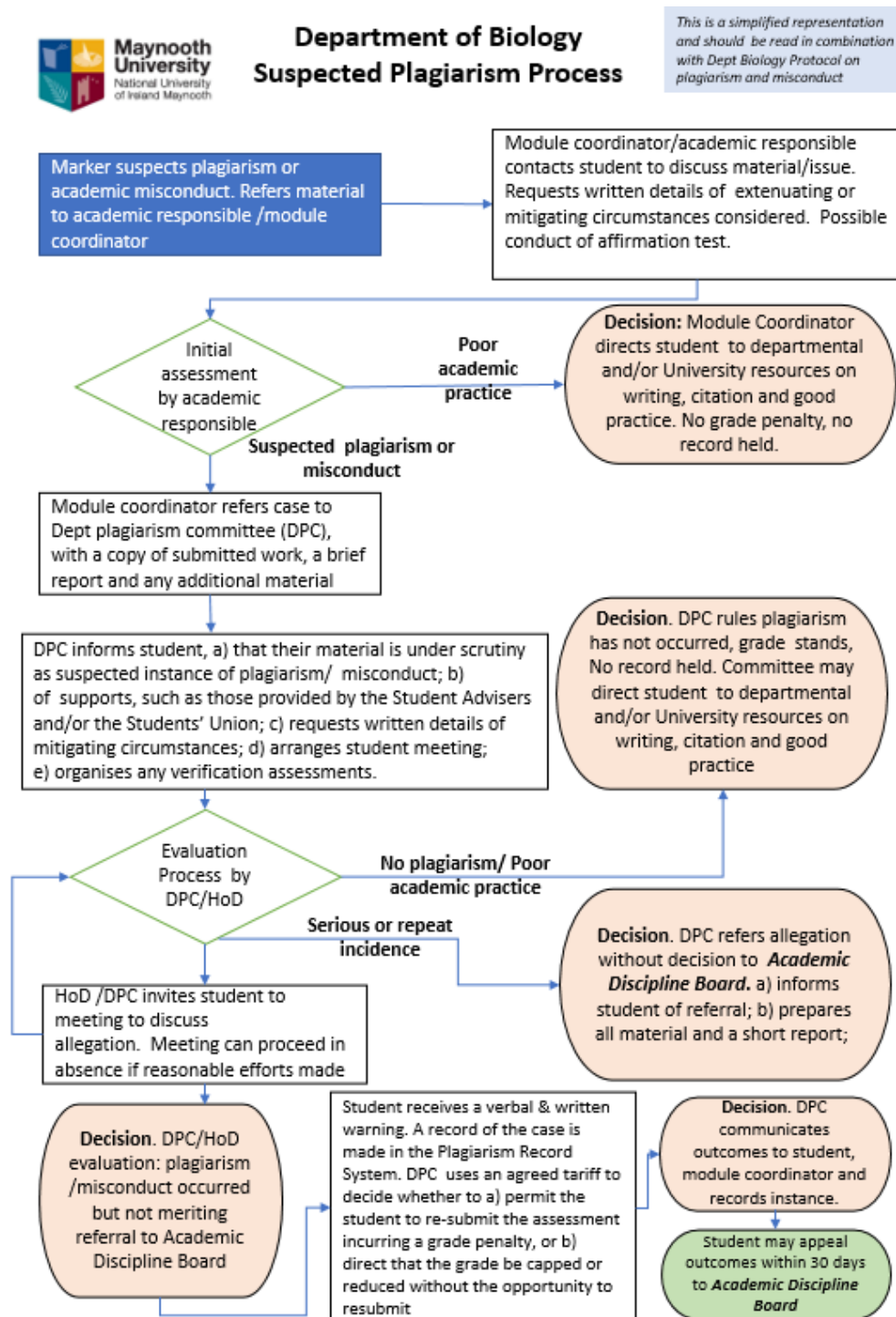
The policies of the University apply within the Department of Biology, as contained on the Maynooth University website (<https://www.maynoothuniversity.ie/university-policies/rules-regulations-students>). Plagiarism is a form of academic dishonesty and will be **treated with the utmost seriousness** wherever discovered. Now that you have reached your final year you have had sufficient training to know what plagiarism is, there is no valid excuse for it to occur and whereas in earlier years the approach was to re-educate students when plagiarism occurred, in fourth year the consequences can be very serious.

Summary of Characteristics/Available Decisions within the Department to guide academics.

	Decision	Characteristics (not exhaustive)
A	Allow the result to stand.	This will be where the academic responsible (or other eg DPC) considers that any misconduct or plagiarism is very minor (a small number of sentences/<10% total etc) and the result remains a fair reflection of the understanding by the student. The latter may be demonstrated by a verification assessment or otherwise.
B	Adjust the result for the module to reflect the performance demonstrated by the student	This will include cases where the academic refers the case to the DPC and the DPC believes that the initial mark is not a fair reflection of the student's understanding, and is able to determine an appropriate mark. The mark adjustment should be proportionate to the extent of the plagiarism. For example, in the instances of plagiarism such as one or two paragraphs or multiple non-contiguous sentences (between 10-30% overall), then a reduction of between 10-30% might be appropriate. If a student has written a passable assignment, but then pasted in additional material which would have resulted in a higher mark the mark could be reduced to the minimum passing grade. Alternatively, an additional "make up" assignment may be requested by the DPC to achieve the adjusted mark.
C	Set a mark of zero and allow the student to resit, in line with normal resit arrangements.	In instances of major plagiarism, where a significant part (for example >30%) of an assignment is found to be plagiarised, the Department will "award a mark of zero in the assignment" but allow the student to resit in line with normal resit arrangements. There will be no possibility of submitting a 'make-up' assignment, and previous work submitted in connection with the course may be subject to further scrutiny.
D	Set a mark of zero and allow the student to resit, but with a cap on the resit mark.	As "C" but the DPC may decide to cap the resit mark where it is the norm in the Department to cap resit, or where there is a potential advantage in late submission. For example, where access to the feedback given to the rest of the class would be a significant advantage, the department may decide to cap the mark. The department may also decide to cap the mark where it believes there was limited collusion or intentional use of external assistance, or similar.
E	Refer case to the Academic Discipline Board of Maynooth University.	This should be used in the more serious cases which include: a) Students who have had multiple exam/assignment integrity issues in different sittings b) Cases where there is evidence of intent. c) Cases of impersonation or material being purchased or suspected of purchase. This will normally be used for repeat offenders, but may also be used for first offences in the most serious cases such as buying essays, or premeditated cheating.

This policy will be implemented in the following manner: As far as practical and in line with Maynooth University policy, plagiarism will be assessed in the Biology department according to set criteria (levels A-E) reflecting the severity of the issue. Levels are derived from the MU University policy ([Rules & Regulations for Students](#) |

[Maynooth University](#)). Thankfully plagiarism in the final year is rare but when it occurs it is often considered at level C or above and can have severe consequences. The following chart outlines the process:



The Academic Discipline Board of Maynooth University has powers to recommend students be suspended or expelled from the University.

All members of the Department providing a reference for a student **may be obliged to mention an instance of major plagiarism**, or two or more instances of minor plagiarism, when providing a reference for the student.

Responsible Use of Artificial intelligence tools for assignments submitted to the Biology Department.

This section lays out the departmental advice and policies on how to use artificial intelligence (AI) ethically and responsibly to support your learning. It details when AI may or may not be used in your assignments.

Be cautious when using AI tools for assignments.

ChatGPT does not “know” the material it presents is fake and if you do not understand the output, then neither do you. You must not use AI tools in your final year project

The key to appropriate use of large language model (LLM) tools (e.g. ChatGPT or others) is to use these tools cautiously, critically, and reflectively to support you in your learning, research and writing in Biology. They should not be a replacement for your critical reading in a topic and should build on your understanding of Biology (not replace it). Using clear, limited, and accurate prompts when interrogating AI based tools will certainly help you. However, tools such as ChatGPT do not verify or even discover information, these tools analyse text to give a most probable pattern that approximates to an answer to your prompt. (In other words, they simply spit out the most likely next word). This is an important consideration, ChatGPT can give you a very well-structured essay which is completely false. **This is why AI tools must not be used in your 4th year thesis or dissertations.** ChatGPT does not “know” the material it presents is fake and if you do not understand the output, then neither do you.

LLM tools do not verify material scientifically but do incorporate all the biases inherent in the interpretations of the material of others. Thus, ChatGPT can deliver overtly or covertly racist, sexist or other discriminatory material as apparent fact, when in reality, these have no scientific basis. It can be trained to “support” these outputs with fabricated references or misrepresented material of others. Such outputs should not be used in your work, but *can you tell the difference between real or fake material?* Using an AI tool properly takes more effort than you might expect, as you will need to check the veracity, and sources of the returned material and evaluate it critically before use. Be aware of the implicit and explicit biases in any text produced by AI tools and take steps to mitigate this in work you submit.

What are the acceptable uses of AI tools for Biology department assignments?

- Before using an AI tool, make sure you understand the basics of your topic, then use prompts that are clear, limited/focused, and accurate;
- Spend time verifying the material returned by your query or prompt;
- Remember that LLM/AI tools generate text without understanding the output, they generate, summarise and predict text, no matter how unscientific or false.

Whilst it is unacceptable to use AI tools in your fourth-year project work, it may be acceptable in other modules but only if specifically stated by your lecturer.

What are unacceptable uses of AI tools for Biology department assignments?

If you attempt to present the outputs of AI based LLM such as ChatGPT or Quillbot as your own work, then you are attempting to present material that is not the result of your academic judgement or authorship. If you use these tools in the following ways, then you have breached the department and University standards of academic integrity and will be subject to the disciplinary procedures of the department and/or University ([An Introduction to Marks and Standards, a guide for Students \(Ver 03April2020\).pdf \(maynoothuniversity.ie\)](#)).

You must not:

- Use AI tools of any kind for any aspect of your final year project work (eg thesis, lit review etc)
- Use AI tools to create blocks of text (including single paragraphs to complete assignments) and/or submit these as your own work

- Use AI tools to create diagrams, figures or tables and submit these as your own work. Instead learn to use BioRender or Excel to create diagrams and graphs, using your judgement.
- Use AI tools to support your preparation of an assignment without declaring which tools and/or how they were used. (You must not use AI/LLM tools for any form of 4th year thesis or dissertation in Biology)
- Use AI-generated false, or inaccurate references or submit AI-generated false, biased or discriminatory claims.

Consequences of unacceptable AI use in course material submitted to the Biology department could be large and impact you in many years' time.

Think of your future career. Future tools in the University may detect AI much more accurately than at present. **These may be deployed retrospectively and you could face loss of your degree qualification**, public embarrassment, and even loss of a job. Students presenting content that has been generated using AI are subject to the same disciplinary procedures as plagiarism. This can potentially result in denial of a reference, or a permanent notice on your student academic transcript, with career-long negative implications. Where a marker (or detection software) of submitted material suspects the inappropriate use of AI tools, the following procedure applies. If the module coordinator considers the use to be non-trivial, the issue will be referred to the departmental academic integrity committee who will assess the case and have the option to perform a **verification assessment** in the form of a face-to-face interview as detailed in the University's Marks and Standards. Where a student does not engage fully with the departmental process or in the most serious instances, the case will be referred directly to the University's Academic Discipline Board without further consideration by the department.

**Biology Dept Academic Integrity Committee
May 2023**

ADDITIONAL GUIDELINES FOR BI450 DATA INTERNSHIP PROJECT and BI452 PRIOR PROJECT

PROJECT STRUCTURE AND ASSESSMENT: BI450

Supervisors 2024-25: Dr Conor Meade

Your BI450 project will provide you with an opportunity to get involved in real research on datasets generated by a research organisation that is active in the natural environment area. Your project also gives examiners and prospective future employers an indication of your ability, your style of work and your initiative. Completing a research project involves a significant level of commitment and engagement, perhaps greater than any other work you have completed to date, but it is important to give due attention to the other parts of your course also, as all modules contribute to your final grade for 4th year. For this reason, it is important to plan your schedule and make time to complete all the work that is required over the coming year.

The BI450 Data Internship has a distinct project structure, based on the analysis of datasets provided by an external Partner Organisation. In 2024-25 the partner organisations are the Environmental Protection Agency and the National Biodiversity Data Centre. When students have been assigned a place on the BI450 module, they will begin the project with a kick-off meeting with their supervisor which will introduce their project title area, the context of the research, the objectives of the project and the datasets being used. Where feasible an initial visit to the Partner Organisation will also be arranged.

The assessment structure for the BI450 Data Internship involves three elements, assessed over the course of the project:

1. **Project Plan** 10%
2. **Research Work** (Preparation, execution and analysis of data, assessed at completion of research): **20%**
3. **Written Thesis:** (incl. Lay Summary and Visual Abstract) **60%**
4. Final **Oral Presentation** of Project: (assessed after thesis submission) **10%**

PROJECT STRUCTURE AND ASSESSMENT: BI452 PRIOR PROJECT

Supervisors 2024-25: Dr Conor Meade; Dr John Devaney

Your BI452 project will provide you with an opportunity to complete in-depth analysis of data you have collected during summer work in the area of natural environment research. Your project also gives examiners and prospective future employers an indication of your ability, your style of work and your initiative. Completing a research project involves a significant level of commitment and engagement, perhaps greater than any other work you have completed to date, but it is important to give due attention to the other parts of your course also, as all modules contribute to your final grade for 4th year. For this reason it is important to plan your schedule and make time to complete all the work that is required over the coming year.

The BI452 Prio Project has a distinct project structure, based on the analysis of your own previous work. When students have been assigned a place on the BI452 module, they will begin the project with a kick-off meeting with their supervisor which will introduce the context of the research, the objectives of the project and the datasets being used. Some consultation with the supervisor of the summer project will be required to ensure data usage concerns are suitably addressed and managed.

The assessment structure for the BI452 Project involves four elements, assessed over the course of the project:

1. **Project Overview 20%: Literature Review** (submitted to Turnitin, Semester I) **15%** and **Research Engagement** (Preparation, execution and analysis of data, assessed at completion of research) **5%**
2. **Written Thesis: 60%**
3. Final **Oral Presentation** of Project: (assessed after thesis submission) **20%**

GENERAL GUIDELINES FOR COMPLETING BI450 AND BI452 RESEARCH PROJECTS

- A. **Starting your project.** You will be assigned a specific research project title with an associated data-holding and management folder on Moodle.
- B. **Project organization- Initial steps.**

Context of your project/ reference material. Familiarize yourself with the background literature relating to the project. Your supervisor may provide you with a reading list or key review articles papers directly relevant to the project. Go to the **Thesis Online Resources** link on your dissertation Moodle page and you will find multiple resources to help with your initial literature review, as well as training options within MU regarding critical skills in *researching the scientific literature, writing, and referencing/citation*. You should discuss the outcome of your literature review with your supervisor approximately 3 weeks after beginning the project. Your supervisor may provide you with additional resources if you have been unable to access them.

Project Methodology. Become familiar with the objectives and data analysis techniques that you will require for your project. It is essential that you become familiar with all the required data manipulation techniques to be used before you start work.

Project Plan. (*BI450 Only) When you have completed the two steps above, you will be invited to present a research plan. This presentation is informal, in a research-meeting setting, and is designed to help you make initial strategic decisions about your research plan. The ideas presented are non-binding, and will function as the starting point for dialogue with your supervisor about your project. The main outcome of this exercise is to set your project objectives, and provide a framework for the organization of your research work and data analysis, below.

(Participation and engagement in the Research Plan activity contributes to your **Research Engagement** mark)

Literature Review (*BI452 Only). For BI452 students, once you have decided on your project objectives, your first research objective is to complete a literature review on the broad topic of your project, in order to evaluate the state of the art, and place your research findings in context. This review should cover the recent historical context of the subject, current thinking and understanding about the natural systems that are the focus of your work, and also any gaps in current understanding, in terms of unexplored areas, or new lines of research that have been stimulated by recent advances in understanding. Word Limit 1500 words. Submission Date: **5pm, Wednesday 15th November 2024** (15% of Marks BI452).

C. **Project organization. Data Analysis.**

A percentage of your final project mark is allocated to your performance in carrying out your data analysis work, and this covers not just the delivery of work but also the manner in which this is achieved.

- * A key element in your project organization is to identify results milestones with your supervisor and to schedule your time for the orderly delivery of these milestones.
- * Identify the kinds of data analysis that are required. Familiarise yourself with these methods, and complete trial evaluations to confirm you are competently executing the various chronological steps in the analysis.
- * Examine your lecture schedule and identify protected time to devote to your analysis work.
- * Keep a research log/ notebook, written in longhand on paper, as a hard-copy diary of the work you are doing. This will be invaluable as a reference document in the final stages of thesis preparation.
- * When carrying out your literature research, keep copies of all papers you have accessed by downloading the original .pdf and storing in a folder on your student account at MU.
- * Analyse your results as you get them. Generate graphs, etc. Immediately and while the material is fresh in your mind and while you are not under too much pressure.
- * Record the results from all experiments, even ones which did not appear to work.
- * See all analyses through to the end. If they are inconclusive, this can be discussed with your supervisor
- * When working at a laboratory desk space, show courtesy to all the people working in the laboratory. Keep your work area clean and tidy and respect other people's laboratory property.
- * Interactions with your supervisor and your engagement with the practical research schedule of your project will, together with presentation of your Research Plan, comprise the assessment for **Research Engagement**.

D. Writing up your results. No matter how carefully you conducted and carried out your experiments and how excellent your results are, your overall mark can be pulled down considerably by a poor write-up. Therefore, it is important to leave sufficient time for writing up the thesis.

A research thesis should be no more than **5000 words** of text for BI450 Data Internship students. The **word count** includes the main body of the thesis, comprising headings, text and in-text citations/ references. Not included in the word count is the scientific abstract (which has its own separate word limit of 200 words), table of contents, table legends and table text, figure legends, bibliography/ reference list, and appendices. The thesis should be organised under the following sections:-

RESEARCH PROJECT THESIS LAYOUT

Typing. Always use a spell-checker. Recommended font is Times New Roman (size 12). The thesis should be double-spaced.

Title page/ Cover sheet. For your project title be brief and accurate. Complete the appropriate sections in the 2024/25 Dissertation Cover Sheet

Acknowledgments page. Optional

Table of Contents. All pages should be numbered and the Table of contents should have a list of all sections and subsections. You should also use a separate numbering system to denote each section and subsection as follows: 1. Introduction; 2. Materials and Methods 3. Results; 4. Discussion, 5. References and 6. Appendices (if any). e.g. the first subsection within Materials and Methods would therefore be numbered 2.1, etc.

Scientific Abstract. This should be **a maximum of 200 words** and should briefly summarize the aims of the project, how the problem was tackled and the key findings from the research. This should have the basic content of the thesis without extensive experimental details.

Introduction. This section covers the scientific background to your project and the rationale for the study. The Introduction should supply sufficient background information from your literature survey to allow the reader to understand and evaluate the findings of the study.

Materials and Methods. A clear and concise description of the techniques you used in the project. This should include sufficient information to allow the experiments to be repeated.

Results. The data is presented in this section in the form of Figures (graphs, histograms), Tables and drawings or photographs as appropriate, and a suitable text which should summarize the purpose, significant experimental observations and briefly explain the findings; reserve extensive interpretation of the results for the Discussion section. **Each results sub-section should begin with text giving a brief description of the rationale and design of the Analysis concerned** (not the methods as these will have already been covered under Materials and Methods) followed by details of the findings, referring to all the Figures and Tables. Figures must have a legend **underneath** with the Figure number and title; followed by a short description of the Figure to make the information displayed understandable without frequent reference to the text. Tables must have the Table number and title **above** the Table with the Legend underneath.

Discussion. The Discussion should provide an explanation and interpretation of your results and the presentation of evidence (from your own project work and from the literature) which justify the explanations proposed. The significance of your findings should be discussed in the context of published work and should not contain extensive repetition of the Results section or reiteration of the Introduction.

References. It must be possible to identify the source of all material which is not your own. The MU Biology Department uses the **Harvard referencing style**, and all dissertations **must** be written in this format. All references should be given fully, and in alphabetical order, in the reference list at the end of the literature survey. Go to the [Thesis Online Resources](#) page and you will find multiple resources to help with writing your dissertation, as well as training options within MU regarding critical skills in *researching the scientific literature, writing, and referencing/citation*.

The reference section must contain all relevant sources (original articles from scientific journals, review articles and chapters from books). You must always reference original articles for techniques or statements of fact; reference to general textbooks and reviews can only be used when you are summarizing points in the Introduction and Discussion. In the **Harvard** Style, all listed references must be cited in the text in parentheses after the relevant section of text. You will be given further directions on accessing literature by your project supervisor and in the talks presented by library staff in early October. The material presented above is for quick reference only.

Appendix/Appendices. These are optional and can be used to tabulate raw data which was used to generate the contents of Figures and Tables of analysed data in the results section. These do not count towards the wordcount.

THESIS ASSESSMENT

BI450 (60% of Marks: 55% Written Essay + 5% for Lay Summary and Visual Abstract)

BI452 (60% of Marks)

Fourth year projects vary greatly in the degree of difficulty of the techniques and the ease with which data are obtained. This is taken into consideration by the examiners. So there is no need to be anxious and upset if some of your colleagues are amassing large quantities of data and despite your best efforts, your project appears to be moving very slowly. Keep in contact with your supervisor and if your supervisor is satisfied with your rate of progress, then you shouldn't worry too much about the progress of your colleagues' research. Most people get great satisfaction from doing project work. It is our hope in the Biology Department that you too will enjoy the intellectual challenge of your project and that it will give you some valuable first-hand experience of the procedures used in original research.

Chapter 8 in Wedgewood, M.E. "Tackling Biology Projects", Macmillan (1987) gives some very valuable advice on the writing of a project report.

When submitting your research project you will be required to sign a declaration on the **2023 Dissertation Cover Page** stating that you have read and understand the department's Policy on Plagiarism, and that your project is your own work. A sample cover will be available for you to download from your dissertation Moodle page.

This must be downloaded, signed and placed as page 1 of your final submission dissertation.

Once again markers are looking for demonstration of higher order thinking (eg synthesis, analysis and powers of evaluation) and critical engagement under each heading. The practical write-ups and your feedback should have prepared you well to write a strong thesis. Your lecturers use the criteria below to grade your project thesis using the scale described on page 36.

Skills/Competencies displayed in thesis work	
Abstract	Research problem, goals, significance, and outcomes/conclusions described and integrated in a concise, effective manner
Adequacy of introduction	in-depth insight into background & published literature, meaningful connections between relevant components are communicated effectively
Referencing and citation	Quality of citation choice/source material, Excellence of format, style
Hypothesis/ Aims	Correct and clearly expressed
Description of methods	Thorough and complete showing sufficient detail and understanding. Repeatable
Presentation and interpretation of results	purpose of each approach/experiment is clear. Data is presented appropriately in figures, tables or text. Statistical tools correct.
Conclusions/ Discussion	Good evidence of evaluation and contextualisation
General presentation	Conforms to formats, free from error, correct use of scientific language/scientific terms.

BI450: LAY SUMMARY AND VISUAL ABSTRACT (5%: included in Main Essay Assessment)

Lay Communication. Many students claim to have excellent communication skills on their CV yet struggle to explain scientific ideas to the public or peers. The lay communication aims to improve your scientific communication capabilities as you explain your work to the educated but non-specialist reader. There are 2 components: the lay summary and the visual abstract of your project. Together they are worth 10% of your project mark.

Preparing your lay summary: Unlike your project scientific abstract, which is designed for your scientific peers, the lay summary is written for non-specialists. It should be written in plain jargon-free English to answer the questions- why was this work done?, how was it done?, what did it find? Why is this important. Imagine you are explaining your project work to a family member who is not a scientist. The following website may help but is designed for larger projects: [In a nutshell: how to write a lay summary \(elsevier.com\)](https://www.elsevier.com/locate/ynbmech)

Format: **200 words or less.**

How to submit your lay abstract. Save your lay abstract as a single document in MS Word format. Save as: YourName_Layabstract.doc or YourName_Layabstract.docx

Upload to Moodle (BI452 page) on or before **21 February (semester 2)**. We recommend you submit this a few days before your final thesis

Preparing your Visual Abstract.

You must prepare a visual (or graphical) abstract of your project. This contributes to the lay communication component of the mark.

“A visual abstract is a **visual summary of the key findings of an article**. Like the abstract section of an article; it conveys the most essential points in a shorter format, but it does not replace reading the full article. Instead, it serves to generate reader interest”. (CDC.gov)

Examples of visual abstracts can be found in recent papers in *Cell*, *Nature Cancer* etc and no doubt you have come across them in your reading. Advice from the Journal *Cell* on preparation with good and bad examples is given here:

[Microsoft Word - GA_guide.docx \(cell.com\)](https://www.cell.com/elsevier.com/locate/ynbmech)

Successful visual or graphical abstracts tell the story of your project (hypothesis, approach and outcomes) clearly and simply in visual format. There is no single accepted approach and you can be as inventive as you like, but it must be a single Powerpoint slide. One way of preparing a visual abstract would be to

4. Identify 1-3 key points from your project
5. Build a single Powerpoint slide possibly with one panel for each point (see below) or other simple layout
6. Add visuals to convey each point. Be sure to use **ONLY** images and graphics that are original or are within the public domain. Copyrighted images will not be accepted.
7. Add a small amount of text to support and explain the images.



The dissemination of acorns is important for new oak forest



We believed squirrels forget where they've buried acorns and promote new Oak forestry



Within 10 years of red squirrel reintroduction to an Irish habitat, Oak forestry increased by 10%

The following websites may be of further help:

[What is Visual Abstract and how to make one the easiest way \(mindthegraph.com\)](https://www.mindthegraph.com/)

8. [Visual Abstract Tutorial for Beginners - Part 1 - YouTube](#)

How to submit your visual abstract. Save your visual abstract as a single slide MS Powerpoint visual abstract in ppt or pptx format. Save as:

YourName_vabstract.ppt or

YourName_vabstract.pptx

Upload to Moodle (BI450/ BI452 page) on the dates/times listed on page 70. We recommend you submit this a few days before your final thesis.

ORAL PRESENTATION (10% of Marks)

For all Capstone projects you have to make a 12-minute, in-person, presentation, with an additional 5 minutes allowed for questions. Oral presentation is a **compulsory** part of your degree and necessary to show that you have developed communication and presentation skills for complex topics, as well as to verify your understanding. **It cannot be delivered on TEAMS or remotely.** If you are hospitalized, or have a registered disability (with the University disability office), and consider that this might hamper your oral presentation, then please inform your supervisor at the **start of your project** who can discuss reasonable accommodations to help you. If you are not registered with the disability office, or have other issues, please engage in early communication with your supervisor who can direct you to supports available. All students are expected to meet the established assessment criteria and fulfil the required academic work and this includes the in-person oral presentation. If something goes wrong on the day or you are nervous, don't worry your supervisor has experience and clear guidelines to help you complete it successfully.

The audience for your oral will include the supervisor, one other member of staff, other fourth-year project students and possibly other research workers (postgraduate and postdoctoral fellows) from the relevant laboratory. You are required to e-mail your presentation (usually in PowerPoint form) to your supervisor at least one day before your talk. Your supervisor will prepare your presentation for the computer projector. If you have any questions about how to deliver your talk, please contact your project supervisor, alternatively more information on improving your oral

presentation skills can be found online³⁴. If your presentation is too large to e-mail as an attachment, please send it via HEA filesender: <https://www.heanet.ie/services/hosting/filesender>

Assessment Criteria for 4th year Oral presentations

Your lecturers use the criteria below to grade your oral work using the scale described below. As stated earlier, your oral **demonstration of understanding and higher order thinking skills** (ability to synthesise material, analyse data and evaluate meanings) are what is being assessed. So, prepare well with these in mind.

Skill/ Competence demonstrated in oral presentation
Relevance of material/content presented orally (facts, examples, published work) 15%
Demonstration of understanding material. (synthesis, analysis, evaluation) 20%
Organisation of material (logic, coherence, structure) 15%
Timekeeping 10%
Quality of presentation 10%
Clarity of presentation 10%
Questions 20%

LATE SUBMISSION OF COURSEWORK

On occasion, a student may not be able to meet a course deadline on a literature/lab project due to unforeseen exceptional circumstances. If you find yourself in this position, you may request a later submission date. The fourth-year modules covered by this policy are **BI450; BI452; BI453**.

If you require a later submission date, you should complete the online [Biology Department Late Submission Request Form](#) available from the Moodle page: [All Biology Students 2025](#). Please note that you will be required to upload your supporting documentation at the time of submission with the exception of illnesses of 2 days duration or less, which does not require supporting documentation.

All applications must be received 5 working days prior to the original submission date or 24 hours post submission date only in order to be considered. Submission with supporting documentation does not guarantee that an extension will be granted. Approval is at the discretion of the department. Further instructions on the process are available on Moodle.

The form should **NOT** be used to request extensions in relation to Lab Practicals, Lab Write-Ups or MCQ resits. In these cases, you should follow the procedure as outlined in the relevant section of this handbook.

The following table gives examples of instances where late submission requests may be considered.

³ Hartigan L & Higgins M. How to prepare and deliver an effective oral presentation *BMJ* 2014; 348 doi: <https://doi.org/10.1136/bmj.g2039>

⁴ Bourne PE. Ten simple rules for making good oral presentations. *PLoS Comput Biol* 2007;3:e77

Reason for Application	Details Needed	Supporting Documentation Needed
Medical Circumstances	<ul style="list-style-type: none"> Specify details (e.g. Illness, injury, hospital appointment, hospitalisation) 	<ul style="list-style-type: none"> Appropriate original supporting evidence must be supplied by a registered general practitioner for illnesses of 3 days or more.
Personal Circumstances	<ul style="list-style-type: none"> Specify details (e.g., family illness) 	<ul style="list-style-type: none"> Appropriate original supporting evidence must be supplied by a registered medical practitioner or other health professional.
Bereavement	<ul style="list-style-type: none"> Specify relationship (e.g., parent/guardian, grandparent, sibling, spouse, child, friend) 	<ul style="list-style-type: none"> Appropriate supporting evidence must be supplied (e.g., RIP.ie notice).
Other	<ul style="list-style-type: none"> Specify circumstances (e.g., jury duty, wedding of a sibling or other immediate family member, victim of crime; participation in a sporting/other event for MU. 	<ul style="list-style-type: none"> Appropriate original supporting evidence must be supplied.

IMPORTANT DEADLINES AND DATES FOR PROJECT WORK

Capstone	Start work	Finish work	Project Plan or Literature Review	Final Thesis submission (5000 words)	Oral
Literature Project (BI453)	7 October	21 Feb		21 Feb [12 noon]	3-7 March
Data Internship (BI450)	7 October	21 Feb	22 Nov Project Plan [at the latest, TBC with supervisor]	21 Feb [12 noon]	3-7 March
Prior research (BI452)	Summer prior to start of Semester 1	Summer prior to start of Semester 1	15 Nov Literature Review (details tbc 2000 word proforma report)	18 Dec [12 noon]	2-6 Dec

BSc Biological & Geographical Sciences deadlines:

Extensions to these deadlines will not normally be granted, because there is a risk that you fail to allocate sufficient time for your revision and other modules. The deadlines are here to help students manage their workload. A sample cover sheet for your project will be available on the associated Moodle page. Please type in the following:

- the title of your project,
- statement that the thesis is submitted in fulfillment of the requirements for the degree,
- your name,
- student number,
- the name of your project supervisor,
- the word count for your submitted thesis
- date.

If you have a serious problem concerning the fulfillment of any of these deadlines, please consult your supervisor.

MU Library: The Library is a resource for your study

The library staff look forward to meeting you during your studies, whether that's online or in person. Library staff will help you with any questions you have about getting started.

MU Library will be essential to you for:

- finding the right **e-books** and **online material** to help you study & write your assignments and essays,
- borrowing physical **books**,
- short, free **online tutorials & quizzes** that will help you improve your information skills,
- approachable **library staff** who will help you find what you are looking for, and
- booking a [group study room](#) when you are working on projects with fellow-students.

Best thing of all? All the resources above are **FREE to use** when you are a student in MU!



Fig. 1: Exterior of MU Library

Start Here: Our Library Homepage



Visit our library homepage at <https://www.maynoothuniversity.ie/library>. It's a great starting point for:

- Up-to-date library access information
- Details on using our services, both on and off-campus
- Information skills training classes (LIST & other sessions)
- Support for your studies and assignments

IMPORTANT! Use your MyCard (student card) to access the library and borrow books.



For more information, look at our guide "Using the Library" here <https://bit.ly/3LOsIGU> or ask us for a demo.

Your **MyCard** (student card) entitles you to access the library and to borrow books. Click the "Using the Library" tab (see Fig. 2) on the library homepage, for more information.

Need Help? We're Here for You!



If you're having trouble finding what you need, our library staff are ready to help. *[Photo by Daniel Balteanu]*

Whether you're on campus or off, you can:

- Visit the **Library Information Desk** on the ground floor of the library
- Use the live "Library Chat" box on our homepage
- Fill out our "[Online Enquiry Form](#)" on the left side of our homepage

Explore Our Study Spaces

The MU Library, located on the South Campus, across the road from the TSI building, offers various study spaces to suit your needs:

- **Ground Floor:** Open-access area before the turnstiles, where you can eat, drink, and chat, with over 50 laptops and print facilities.
- **Levels 1 and 2:** Quieter areas with [bookable group study rooms](#), a flexible learning space and a silent study room.



Check out our spaces ahead of time with our VR Tours and Exhibitions here: <https://bit.ly/3WLUp41>

Find the Right Resources



Using the correct information source is crucial for your success. Each subject has a dedicated *Subject Guide* on our website. These guides, available here: <https://bit.ly/3SuB84D> include recommended books, databases, reference styles, online tutorials, and more. There's contact information for our *Teaching & Learning Librarians*, if you need more information on your topic.

Tech and Tools at the Library

We offer various technological resources, including:

- **Laptop Loans:** Borrow a laptop from the laptop-bank opposite the library desk.
- **Ground Floor Print Hub:** Multifunction printers available for all your print jobs.
- **3D Printing:** Available for free student and staff use; ask at the Information Desk.
- **Charging Stations:** For recharging your devices quickly.
- **Short Story Dispenser:** For a quick, fun read.
- **Wellness Zone:** Try out our 3 Energy Pods & Cubbie on Level 1, for rest and relaxation.



You can also suggest up to 5 books a year for the library to order here: <https://bit.ly/4dcxLYj>

IT Services

IT Services are available at the Library Information Desk during service hours to help with any IT issues, including photocopying.

Refreshments

There is a Starbucks Café found on the ground floor of the library, plus vending machines and water fountains available in the library.

Stay Connected and Informed

Keep an eye on the screens in the library for events. Follow us on social media for updates, tips and events throughout the year:

- **Instagram:** @library_mu
- **Facebook:** @MaynoothUniLibrary
- **X:** @mu_library

We wish you every success in your studies and look forward to seeing you soon!

Useful Links and Contacts

- **Library Homepage:** <https://www.maynoothuniversity.ie/library> 
- **Using the Library:** <https://nuim.libguides.com/library-services/usingthelibrary> 
- **A-Z Subject Guides:** <https://nuim.libguides.com/> 
- **Book a Group Study Room:** https://nuim.libcal.com/booking/MU_GroupStudyRooms 
- **Online Tutorials:** <http://nuim.libguides.com/list-online>



Biochemical Calculations Website: Biochemicalc™

<http://www.biochemicalc.com>

Students in the Department of Biology now have access to Biochemicalc™. This website, developed by Professor Sean Doyle (Biology) and Mr Dermot Kelly (Computer Science), allows students to:

1. Learn the fundamental concepts of biochemical calculations such as:

What are moles, nanomoles and micrograms? Why do I need to use moles in my calculations? How do I make laboratory solutions such as buffers? What is molarity?

2. Use online calculators to help solve biochemical problems.

The online calculators allow students to calculate the weights (in mg or g) of reagents required for making up laboratory solutions of defined molarity, calculate the volume of stock solutions required for preparation of a more dilute reagent, carry out % (w/v) dilutions, work out how to do serial dilutions etc...

3. Practice online questions to test their understanding of biochemical calculations.

Biochemicalc™ offers a suite of pre-formatted questions to help students judge if they understand key concepts required for becoming proficient at undertaking laboratory calculations. These questions are of varying difficulty and style, and are designed for use in association with the online calculators on the Biochemicalc™ website.

Although primarily designed for students in the 3rd and 4th years of our degree programmes, it will also be of assistance to students at earlier stages of study. Indeed it may be of use to students taking Chemistry, or any subject requiring knowledge of laboratory calculations. Postgraduates may also find aspects of Biochemicalc™ beneficial to their own research projects and also find use of its functionalities a useful “double-check” for their own laboratory calculations.

We encourage you to use Biochemicalc™ and please tell others if you're happy with it. If not, please email: biochemicalc@gmail.com

Biochemicalc™ was funded by the NUI Maynooth CTL Fellowship Programme 2011

EXAMINATION ASSESSMENT SCALE

Letter Grade	Descriptive Heading	Representative %	Class	4th year Thesis/ Oral description
A++	Answer which could not be bettered.	100	I	Very Good
A+	Exceptional answer displaying unexpected insight.	90	I	
A	Undoubtedly first class, flawless answer, demonstrating originality.	80	I	
A-	Almost flawless answer demonstrating some originality	70	I	
B+	Extremely high competence, perhaps displaying limited originality or technical flaws or minor errors	68	II-1	Good
B	Fundamentally correct and demonstrating overall competence.	65	II-1	
B-	Competent performance, substantially correct answer but possibly containing minor flaws or omissions.	60	II-1	
C+	Awarded on the basis of the answer being somewhat better than a C but below a B-.	58	II-2	Satisfactory
C	Basically correct, answer with minor errors or one major error/omission.	55	II-2	
C-	Awarded on the basis of the answer being somewhat below a C but better than a D+.	50	II-2	
D+	No more than adequate answer.	48	III	Barely satisfactory
D	Adequate answer with serious errors or omissions.	45	III	
D-	Lowest passing grade, barely deserving to pass.	40	P	
E+	The answer is inadequate and does not deserve to pass.	38	F	Un-satisfactory
E	The answer fails to address the question properly but displays some knowledge of the material.	35	F	
E-	Fails to address the question.	30	F	
F+	Little relevant or correct material but some evidence of engagement with question.	20	F	
F	Very little relevant or correct material.	10	F	
F-	Totally irrelevant answer.	0	F	

Pass standards for lecture modules

Pass standard	40% or higher
Compensation range	Marks of at least 35%, but less than 40%
Incomplete/Not passed	Marks below 35%

Please see the following link for Marks and Standards for programmes at Maynooth University:

<https://www.maynoothuniversity.ie/exams/university-examinations-regulations-and-procedures>

Past examination papers can be obtained from the Quicklinks section (lower left-hand side of the page) of the Maynooth Library web page. <https://www.maynoothuniversity.ie/library> These may be used as a **guide** to the **type of questions** on exam papers.

BIOLOGY LABORATORY SAFETY

For the protection of yourself and others please read the following notes carefully and obey the instructions. Students taking project work in a research lab should read and comply with the specific additional requirements in their assigned laboratory. It is your responsibility to make yourself aware and to comply with all safety requirements.

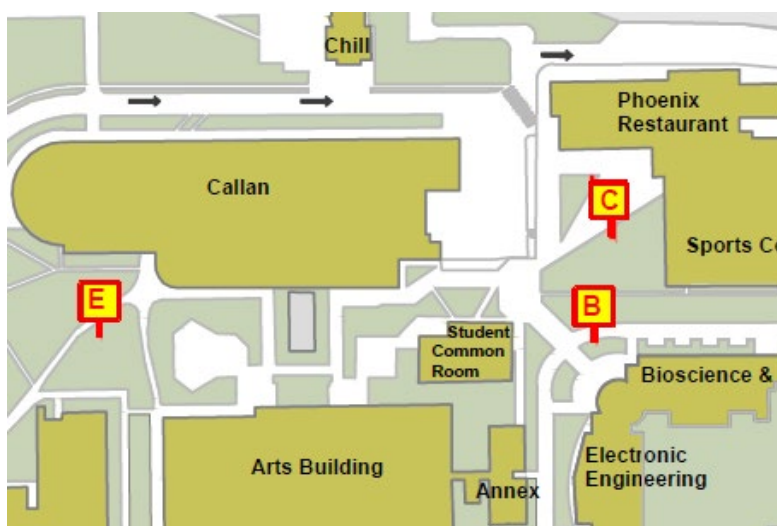
COVID-19 GUIDANCE:

If you have COVID: do not come on campus, follow the HSE guidance for self-isolation

(<https://www2.hse.ie/conditions/covid19/>)

FIRE:

- On hearing the fire alarm or on discovering a fire, stop what you are doing and raise the alarm.
- If you are using a Bunsen, switch it off.
- Shut off the Bunsen gas supply to the lab.
- Leave in an orderly manner and close the door behind you. **Do not use the lift.**
- Make your way to the nearest assembly point B, C or E (see the map below).
- Remain at this location until instructed by security staff to return to the building.



PERSONAL PROTECTION:

Do not smoke, eat, drink or chew gum in any laboratory. University Policy prohibits storage of food and drink and food in all laboratories. You are required to wear a Howie style white laboratory coat with all buttons closed and sleeves fully extended at all times. Laboratory coats may be available for hire from the Biology Department.

You must also wear safety glasses at all times. Please contact the technical staff if you need to purchase a pair. Sandals, flip-flops and other open footwear are prohibited when chemical and biological agents are used. Long hair must be tied back. You must wash your hands immediately at the end of the practical or as necessary in a research lab.

You will be provided with gloves for your personal protection. Unfortunately, they only protect the wearer and can easily contaminate surfaces. Remove all gloves before leaving the laboratory, even if for a brief period. Remove gloves while using laboratory equipment unless there are specific hazards present. Do not wear gloves when using Bunsen burners unless specifically instructed by the lecturer in charge. If you need to transfer samples or equipment to another laboratory, remove one glove and use the ungloved hand to open doors etc.

PERSONAL INJURY:

You must cover any cuts or grazes with a plaster. Please inform your demonstrator. There are first aid cabinets in all teaching laboratories.

Report any accident or injury, however trivial, to a demonstrator.

We will explain specific hazards or disposal methods, if any. You must follow these instructions carefully.

Please inform your demonstrator or lab supervisor if you have any concerns relating to a pre-existing medical condition, or if chemical/biological agents used in a practical session may affect any pre-existing medical condition.

GENERAL SAFETY:

In accordance with university regulations, you will be expelled from the practical session or research lab. if you do not conduct yourself in an orderly manner, or if you deliberately act in an unsafe manner. We allow students in the teaching laboratory only during timetabled laboratory sessions. You may not use the laboratory at other times unless you obtain permission from the technician in charge. Undergraduate students should not enter the preparation laboratory, research laboratories, growth rooms, storerooms etc. without permission.

Proper regard to the correct use of equipment is required from all staff and students. Intentional interference with safety signs and safety features of any equipment is a criminal offence.

We expect you to leave your bench place and work area, including sink, clean and tidy.

It is particularly important to put microscopes away correctly:

- Remove slides. Your demonstrator will instruct you on how to dispose of slides and coverslips
- Check that a low power lens is in the viewing position.
- Clean all lenses with lens tissue.
- Unplug the microscope and wind flexes neatly, but not tightly.
- Cover the microscope.

You should be aware that we frequently transport chemicals and biological materials around the department. Therefore, it is very important that you walk with due attention in the corridors.

N.B. Follow the instruction of your demonstrator or supervisor at all times. Please check with them if you have any doubts or questions in relation to safety. University safety and public health procedures must be adhered to at all times. Instruction from demonstrators, academics and technical staff must be followed at all times. Failure to do so will result in automatic expulsion from the laboratory and the forfeit of any grades associated with that practical session and an “unexplained absence” will be awarded. Repeat offenders will receive an automatic failure of continuous assessment.

Preparing for practicals/work in labs

- Complete any advance requirements before attending (e.g. Read practical manual, watch any associated videos, complete any required exercises). Details of these requirements will be provided by your lecturer in advance.
- Practical manuals will be available on Moodle in advance of your practical with a printed copy provided to you during attendance at the practical.
- If you are unable to attend a practical, please refer to the instructions in your introductory handbook for completion of an absence form, along with submission of appropriate supporting documentation, as required (Notification of Absence section). Please note the list of acceptable reasons for non-attendance, outlined in the Notification of Absence text.

Preparing for Laboratory Projects

In addition to attending and passing all the safety exercises in the General Methodology module, it is your responsibility to familiarise yourself with the specific safety issues in your assigned research laboratory and to comply with the specific safety measures. You should read the safety manual and protocols in your assigned lab. Do not commence project work until you have familiarised yourself with all safety protocols. As you learn new techniques it is your responsibility to make yourself aware of the safety issues and to always ask your supervisor if you have doubts or need more safety information.

The Department of Biology would appreciate if any student with a medical condition/allergy, or who is pregnant/breastfeeding, to document the details on the form which will be provided during your first workshop class. If the medical condition changes during the year, please inform your Senior Demonstrator or your Course Coordinator.

All staff involved in this process will respect the confidentiality of the students, ensuring that this information is provided to the relevant personnel on a need-to-know basis only.

NOTIFICATION OF ABSENCE

It is the responsibility of all students to be available for class throughout Semester I and Semester II between the hours of 0900-1800 Monday to Friday, in addition to occasional classes outside these hours (eg. field trips, academic visits). If you are unable to attend Laboratory practicals, workshops or tests for any reason you must advise the Department of Biology by submitting an on-line **Absence Form** through the Moodle course [All Biology Students 2025](#) either before your absence or within FIVE working days of the end of the period of absence. When submitting the absence form you will also be able to upload copies of your medical certificates or other relevant supporting documentation. Instructions on how to do this are on the Moodle page. **Failure to do so may result in the absence being counted as unacceptable and you will be given a mark of zero.**

Please note that if you are submitting a medical certificate, **the cert must be issued during the period of illness.** BACKDATED MEDICAL CERTIFICATES WILL NOT BE ACCEPTED FOR ANY REASON.

Please read and take note of your responsibilities relating to absence as, in signing a Notification of Absence Form, you agree that you have read and understood them.

It is your responsibility to:

Advise the department of any absence. Submit an [Absence Form](#) to your department through the Moodle Absences course with the relevant supporting documentation either **before your absence or within **FIVE** working days of the end of the period of absence.**

1. **Keep in touch** with your department should you be absent for a prolonged period.
2. **Make up any work** you have missed due to your absence.
3. **Agree a revised deadline** with your department for any missed assessment(s) due to your absence. **Note that alternative arrangements for a missed test will only be made if a medical certificate is supplied.**
4. **Recognise that submission of an Absence Form does not automatically mean that the absence is acceptable** and that it is at the discretion of the department as to whether any absence is deemed acceptable or unacceptable. If the absence should be deemed unacceptable it will be recorded as such and count against the minimum attendance level.
5. **Recognise that**, although a specific individual absence may be deemed acceptable, if your overall attendance and submission of work drops below the minimum level prescribed by your department, then **disciplinary procedures will still be followed.**

6. **Recognise that notification of absence, whether it is deemed acceptable or unacceptable, does not constitute grounds for appeal** against a course or programme failure or failure to progress to the next stage of study.

1. Notification of Absence Forms

Reason for absence	Documentation required (<i>all to be submitted online through Moodle</i>)
Illness up to and including 5 consecutive term-time days (excluding Saturdays and Sundays)	Absence Form
Illness for more than 5 consecutive term-time days (excluding Saturdays and Sundays)	Absence Form plus formal Medical Certification <u>issued and dated during the period of illness</u> and signed by the Medical Centre, your GP or hospital consultant
Unrelated to sickness	Absence Form plus supporting evidence

2. Supporting evidence

The following table gives examples of the kind of supporting evidence that you may be required to provide as justification of absence.

Absence	Evidence
Illness of LESS THAN FIVE consecutive term time days	Self-certification— Absence Form which must be submitted to the department through Moodle within 5 working days of the end of the period of absence . Should students submit repeated self-certifications, the department will require students to produce formal Medical Certification. Note that alternative arrangements for a missed test will normally only be made if a medical certificate is supplied.
Illness of MORE THAN FIVE consecutive term time days	Formal Medical Certification issued and dated during the period of illness and signed by the Health Centre or your GP or hospital consultant
Self-isolation without illness	Self-certification – Absence Form which must be submitted to the department through Moodle. Notify in advance or within 1 day of scheduled continuous assessment component. An alternative assignment/assessment may be made available for you to do remotely and submit online. Supporting evidence can include messages relating to close contacts or instructions to self-isolate.
Outpatient's appointment	Letter from outpatients or appointment card
Doctor or dental appointment	Appointment card
Documented personal problems	Letter from someone, e.g. counsellor, who has direct knowledge of the problem and/or is involved in supporting you
Illness of dependent or family member	Medical Certification and statement explaining illness and why personal attention is necessary
Bereavement	Formal certificate or note from family member who can vouch for the situation
Severe transport problem	A copy of online or newspaper reports on the problem to be submitted to the department within 5 working days of the problem having occurred
Court attendance	Official correspondence from the Court confirming attendance requirement
Victim of crime	Statement of events, police report and crime reference number

Involvement in a significant/prestigious event	Letter of invitation from the relevant organising body
Sport commitment at national/county level	Official correspondence from the relevant sporting body confirming the requirement to be available on specified dates

The following table gives examples of the kind of circumstances where absence **may** be deemed as 'acceptable' and 'unacceptable' for non-attendance. This is for general guidance; it does not represent an exhaustive list. All absences will be reviewed on a case-by-case basis.

Acceptable	Unacceptable
<ol style="list-style-type: none"> 1. Illness 2. Displaying COVID-19-related symptoms 3. Self-isolating due to COVID-19 4. Hospitalisation 5. Outpatients appointment (where possible you should try to make any appointment outside of your class commitments) 6. Doctor or dental appointment (you should try to make any appointments outside of your class commitments) 7. Documented personal problems 8. Illness of dependent or family member (until other arrangements can be made) 9. Bereavement 10. Severe transport problems (e.g. severe disruption of train travel due to signaling failure or track problems or major traffic incident on motorways, which can be verified by online or newspaper reports) 11. Court attendance or victim of crime 12. Representing College/county/ country at significant or prestigious event or sport commitment or involvement in such an event 	<ol style="list-style-type: none"> 1. Oversleeping 2. Misreading the timetable 3. Paid employment and voluntary work 4. IT and/or computer problems 5. Minor transport problems, e.g. being stuck in normal rush hour traffic, not permitting enough time in travel plans for minor unanticipated delays, missed public transport 6. Holidays 7. Family celebrations 8. Weddings 9. Accommodation issues, e.g. moving house 10. Extra-curricular sports activities 11. Driving test 12. Lack of awareness of attendance requirements and University Regulations in this regard

Multiple Choice Questionnaires and Notification of Absence

Throughout the year you will sit a number of Questionnaires, the majority of which are Multiple Choice Questionnaires (MCQs) which are generally comprised of questions that cover a significant proportion of the module.

It is important that you view the MCQs as official exams and are aware that different policies exist for missing an MCQ than for a practical. In addition, Maynooth University Exam policies and regulations will apply and be enforced during MCQs.

All MCQs are compulsory and failure to sit these exams will result in a **zero** grade.

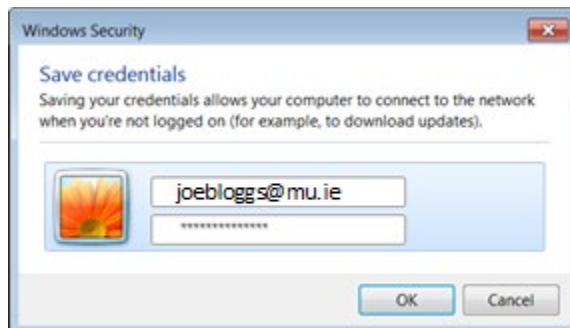
If you foresee that you may not be able to sit an MCQ it is imperative that you contact the lecturer who is setting the exam **BEFORE** the MCQ.

Individuals who miss an MCQ may be permitted a resit if they have an acceptable reason and provide the appropriate evidence. Individuals who miss an MCQ without an acceptable reason and who did not contact the **lecturer who has set the exam** or **senior demonstrator** prior to the MCQ will not be offered a resit and will consequently be awarded a zero grade.

MCQs are exams and Maynooth University Exam policies and regulations apply during both. These can be viewed at the [Maynooth University Examinations Office](#) webpage.

Connecting to Maynooth University wireless networks:

Maynooth University along with many other institutions broadcasts the eduroam wireless signal for students and staff. Use your wireless client to connect to eduroam and when prompted enter your Maynooth username and password.



You may need to enter your credentials twice when connecting for the first time. Some users will see prompts regarding certificates and should choose the “Accept \ Continue” option at this prompt.

***If you enter your username in the format of [username@mu.ie](#) (not an email address) your Maynooth account will allow you to connect to eduroam in other participating institutions for example in UCD, DCU, TCD and many others around the world.*

Notices: Information for students will be posted on MOODLE and can also be notified by e-mail to your mumail address. These will include information on courses, questionnaire results etc.

E-mail: You should check your Maynooth University e-mail account on a **DAILY** basis. Messages to individual students from Staff will normally be made via e-mail, using the student’s Maynooth University e-mail address. Delete messages regularly to ensure that your e-mail account is not over quota.

Moodle <https://moodle.maynoothuniversity.ie/>: This online learning environment is accessible both on and off campus. We use it for: (a) posting notices and announcements (b) to pass on information/ resources about individual modules and (c) recording absence. You will have access to all MOODLE areas relating to the modules for which you are registered as well as to general information areas:

- **All Biology Students 2025** This page is also used for recording absence and submitting supporting documentation.

You should become familiar with the essentials of MOODLE as soon as possible.

Tips from the Biology department on getting better marks in your final year.

Many students are using the same learning strategies that suited them in secondary school, without realizing that these work less well with each year at University.

How students fail or underperform in final year

The responsibility is on you to use your time wisely and get the balance right between external work, commitments, socializing and getting, the best qualification you can. Every year some students dedicate too much time to part-time work (often in retail) and then fail or under-achieve in their exams in the summer. You need to be responsible and exercise good judgement in treating your studies seriously and prioritizing your study. Here is some advice from past students who have failed or underperformed in fourth year - learn from their mistakes!!

1. **I missed too many lectures!** Our tip- If you do not attend lectures you will miss a lot of information that is not possible to pick-up from somebody else's notes. The lecturer may emphasise a point or explain something in a particular way that will stick in your mind. The lecturers often emphasize what is needed for an exam answer that Moodle notes do not. There is a direct correlation between missing lectures and failing.
2. **I memorised essays but still got poor marks.** We are not examining for memory but for skills and competencies linked to higher order thinking. Your strategy for leaving cert will not work well. Memorising essays runs the risk of your guess being incorrect and failing to show you understand the question set. This is a common reason why students underperform.
3. **I failed on really simple stuff because I didn't submit it!** Our tip-Some compulsory modules (such as BI420 seminars) require continuous assessment (CA), these are very straightforward to do at the time, but if missed, you may discover you cannot pass the module or resit this in the autumn. DO the CA!
4. **I left things too late/ I didn't read my notes soon enough!** "I only downloaded the Moodle extra reading and lecture notes in the week before the exams – but then I couldn't make any sense of it and I had too much to do." Our tip: engage early with your material.
5. **It took a long time to get a study routine.** "I wish I had got into the habit of trying to do a few hours of study each day in semester 1" Our tip- this is great advice and a habit developed by students who do well.
6. **I missed the general methodology practicals!** See point #3.
7. **I trusted ChatGPT.** "I didn't realise ChatGPT is a sentence generator, not a search engine. I had my marks reduced because I used AI poorly." Our tip- Trust yourself and your years of study- don't risk your degree or future career by using a poor tool.

8. **I never asked questions!** “I didn’t like to be the centre of attention in years 1 to 3, but I started to ask questions in final year.” Our tip- your lecturers can be really helpful. They love their subjects and are a resource to help you- use them.
9. **I didn’t prepare enough for the exams!** In September, the exams look to be very far away but they will arrive sooner than you expect! Our tip- Every hour of work before study week, is worth three after Christmas!. You need to start working towards the exams from the first week of the year. Prepare like someone training for a marathon - train (attend lectures and practicals), build up your distances (study, attempt sample exam questions) and finish the race (pass your exam successively).
10. **I Began to panic!** “Other students were saying to me they had the entire modules covered and all the possible exam answers prepared. It was starting to freak me out. But I spoke to friends, worked at my own pace and stuck to my plan. I did the work and passed well” Our tip- Don’t let gossip freak you out.

Other University Supports and Services

Academic Advisory Office: The Academic Advisory Office offers a convenient first point of contact for students who wish to seek advice or assistance with their general experience of University life. The office provides an ombudsman-like role for students who may be encountering difficulties in their programme of study. [Academic Advisory Office](#)

Examination Office: The Examinations Office is part of the University Registry and administers the examination timetable. It is responsible for the central administration of the University written examinations. The academic year is semesterised with examinations held in Semester One (January) and Semester Two (May) with a Supplemental/Resit autumn session in August. [Examination Office](#)

Student Health Centre: The Student Health Centre is an acute care/advisory service. The service is envisaged as an addition to the student’s own family doctor or specialist medical service. It operates within resource constraints so certain service limitations apply. Students should continue to attend their own general practitioner. [Student Health Centre](#)

Student Services: Student Services is an integral part of the University community, enabling the promotion and development of its educational mission. Using a holistic approach, we offer a range of clearly defined services to support and empower students to achieve their personal and academic potentials and so enhance their life's journey. We strive to create a community which is open and caring and where diversity is expected and respected. [Student Services](#)

Maynooth Access Programme: The Maynooth University Access Programme (MAP) encourages under-represented groups to enter third level and provides these groups with support through their time at Maynooth. These groups include [under-represented school leavers](#), [mature students](#), [students with disabilities](#) and members of the Irish Traveller community. [Maynooth University Access Programme](#)

FSE Equality, Diversity and Inclusion (Committee)

The Faculty of Science and Engineering Equality, Diversity and Inclusion (EDI) Committee, are delighted to announce a series of EDI online training opportunities that are available to all students. EDI training is a potent tool for increasing awareness, enhancing comprehension, and equipping individuals with the skills required to both implement and advocate for fairness, respect, and the celebration of our differences.

How to Get Involved:

Participation in online EDI training initiatives is open to all students. The [Equality Office](#) has shared a helpful list of EDI-related online courses / training sessions at Maynooth University and highlighted who they are available to.

Training	Location	Staff / Students?
EDI in HE & Let's Talk About Race	Moodle	Available to staff and students at MU
Consent at MU – Preventing Sexual Violence & Harassment	Moodle	Available to staff and students at MU
Sexual Health Maynooth University (Student link)	Moodle	Available to staff and students at MU
Disability Awareness Training – National Disability Authority	Online	Open access

If you have any questions or require additional information, please do not hesitate to contact the Universities EDI Committee at (fse.admin@mu.ie).

Timetables 2024/25: See link [Timetables | Maynooth University](#)

Campus Maps:

[Campus Maps](#)

MAPS OF THE DEPARTMENT

