



Department of Biology

**MSc in Immunology
&
Global Health**

2024 - 2025

Welcome to Maynooth University

The staff of the Departments of Biology, Anthropology, Geography, Psychology and Mathematics at Maynooth University extend a warm welcome to all students. We hope you will enjoy your year with us and gain valuable skills and knowledge.

This taught modular MSc programme in Immunology and Global Health has two aims: to give postgraduate students a thorough understanding of theoretical and practical immunology that can be applied in an academic or private sector environment; and to position that understanding within the context of global health and development. This course will provide broad training in academic and clinical immunology suitable for the professional advancement and personal development of students.

The programme will be delivered as 12 taught modules (60 ECTS) and one research project (30 ECTS). It will be taught by lectures as the major vehicle, but will also include seminars, workshops, laboratory demonstrations, practicals and problem-solving approaches. Most modules will be supported by online provision through Moodle (the MU virtual learning environment). All modules will have prescribed recommended reading and some modules will have associated tutorials. In addition, students will be expected to undertake independent study of current research literature relating to each module. A small amount of practical work is associated with some modules, but, the majority of laboratory-based experience will be in the form of a research project supervised by an academic investigator. The research project may be based in MU or elsewhere. To assist students a series of workshops and seminars are scheduled which will cover all aspects of postgraduate study, including study skills, report and scientific writing etc.

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

Structure of the MSc programme

The programme consists of 12 taught modules and a research project, which is carried out during the summer months. Examinations for semester 1 modules will take place in January and examinations for semester 2 modules will take place in May.

Semester 1

BI 601:	Fundamental Immunology
BI 602:	Advanced Immunology
BI 604:	Bioethics, biopharmaceuticals and clinical trials
BI 608:	Vaccines and adjuvants
MT 601:	Epidemiology and the modelling of human disease
BI 611:	Seminars in Advanced Immunology and Global Health
AN699:	Global Health in Anthropology

Semester 2

BI 605:	Clinical Immunology
BI 606:	Applied and Molecular Immunology
BI 607:	Introduction to Bioinformatics
BI 611:	Seminars in Advanced Immunology and Global Health
GY606:	Rural Geography
PS607	Impacting Global Health Systems

Summer project

BI 609:	Immunology Masters Research Project
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Modules

AN 699: Foundations of medical Anthropology

Module content: This module offers an advance introduction to the broad field of Global Health in Medical Anthropology, focusing on the classical anthropological contributions to this important subfield, from the work of Farmer and Kleinman to current debates around Global health, health care systems; care more generally, and suffering (social, medical and psychological). Students will refer to key works in this area, such as studies of structural violence and health outcomes, critiques of bio-medicine, healing and health care. Students will also explore ethnographic work on patient-physician relationships, the social and community contexts of care provision, and the impact of bio-medicine on Western and non-Western populations.

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

- Show detailed knowledge of the history of Global Health in Anthropology
- Compare and contrast different methodological approaches in the sub-discipline
- Show detailed knowledge of the key concepts in Global Health in Anthropology
- Show evidence of having acquired scholarly skills of interpretation and analysis and have reflected on the fieldwork experience with particular reference to medical matters

Course structure: 12 lecture hours

Marks out of 100: Continuous assessment 100%

BI 601: Fundamental Immunology

This module will give students a good grounding in the scientific theory underlying modern immunology. Topics studied include innate immunology, inflammation and signalling, B cell biology, the structure and function of antibody and how diversity is generated. Cell-mediated immunology will be examined contrasting T cell recognition with B cell recognition of antigen. T cell development, effector and regulatory functions and cytokine production will be discussed in detail, following an in-depth examination of the major histocompatibility complex structure, organisation and function. Students will undertake 6 hours of practical work to introduce basic techniques in immunology.

Course structure: 16 lecture hours, 6 practical hours with an essay assignment.

Marks out of 100: 70 marks for one two hour written exam at the end of semester 1, 15 marks for continuous assessment, 15 marks for essay assignment.

BI 602: Advanced Immunology

This module will provide students with a detailed understanding of the immune system, including the molecules and signalling pathways that mediate immune effector functions. Topics covered include: Innate Immunity, Pattern recognition receptor signalling, the Major Histocompatibility complex and its role in transplantation immunology, antigen processing

and –presentation, T and B cell activation, Immune effector mechanisms, Cell migration and Inflammation, the immune response to viruses and viral immune evasion.

Course structure: 16 lecture hours, 4 tutorials, prescribed reading

Assessment: Total marks 100%. 65% for two hour written examination at the end of the semester 1, 35% continuous assessment (20% for MCQ and 15% for group assignment).

MT 601: Epidemiology and the modelling of human disease

Module objectives: The aim of this module is to provide students with an understanding of epidemiology and the mathematical modelling of human disease/ immunisation. By the end of the module, students will have a broad appreciation of the processes underlying disease modelling, and a detailed knowledge of how epidemiology can inform health policy.

Module content: Topics covered include: History of epidemic modelling, components of the modelling process, study design including case control, cross sectional, cohort and experimental studies. Inferential statistics: hypothesis tests and confidence intervals for means and proportions. Analysing, solving and interpreting various models of diseases such as the Kermack-McKendrick Susceptible, Infectious and Recovered (SIR) models using differential equations, applications to childhood diseases. Estimating epidemiological parameters and vaccination rates using serological and survey data. Throughout the course, emphasis will be placed on the implications of the models and their results for policy and planning in the health services.

Teaching Methods: 20 lecture hours and 4 hours of workshops/tutorials with class assignments.

Recommended Reading:

Anderson, R.M. and May, R.M. (1992). *Infectious Diseases of Humans, Dynamics and Control*, Oxford University Press.

Brauer, F. and Castillo-Chavez, C. (2001). *Mathematical Models in Population Biology and Epidemiology*, Texts in Applied Mathematics 40. Springer.

Murray, J.D. (2001). *Mathematical Biology, 1, An Introduction*, Springer

Slome, C., Brogan, D., Eyres, S. and Lednar, W. (1986). *Basic Epidemiological Methods and Biostatistics, A workbook*. Jones and Bartlett, Boston.

Marks out of 100: 25 marks for homework and 75 marks for one 1.5 hour written exam at the end of semester 1.

GY 606: Rural Geography

This module explores issues relating to the environmental and social causes of human disease. It will explain and illustrate, through case studies and examples, the important role of geography in explaining the global burden of disease, health inequalities, and linkages between the physical environment and health.

Learning Outcomes:

On successful completion of the module, students should be able to understand current interpretations of geographies of health and critically evaluate the geographical dimensions of research and policy in a global health context.

Course structure: 20 lecture/workshop hours; 6 seminar hours.

Marks out of 100: Continuous Assessment 100%.

BI 604: Bioethics, Biopharmaceuticals and Clinical Trials

Lecture topics will include: bioethics in relation to scientific research and drug development; the regulatory issues facing the introduction of pharmaceuticals; the design and management of clinical trials. The module will also involve guest lectures from academia and industry, which support the lecture material. On successful completion of the module, students should be able to contrast differing ethical perspectives on medical research; connect the regulatory frameworks associated with human medicines; and evaluate the suitability of clinical trial designs.

Course structure: 16 lectures/workshops

Marks out of 100: 100 marks for continuous assessment

BI 605: Clinical Immunology

Module Content: An introduction to Autoimmunity. Peripheral and central tolerance. How tolerance is broken. Mechanistic pathways to autoimmunity. Cryptic epitopes and epitope spreading. Jerne's theory of the idiotypic network. Critical evaluation of immunological theories of non-self and self and their limitations. A survey of major autoimmune diseases with mechanisms and therapeutic options. Autoinflammatory syndromes. Gel&Coombs classification of hypersensitivities. Oral Tolerance. Allergy and Immediate/ early hypersensitivities, delayed type hypersensitivities, representative pathologies and therapeutic options with biochemical mechanisms of action. Primary immunodeficiencies and therapeutic options. Haematopoietic stem cell transplantation. Solid organ transplantation. Evolving areas in clinical practice. Continuous assessment will be based on a) analysis of a series of hypothetical case studies; b) Technical report analysing the future potential for new therapies in an immunopathological context.

Course structure: 16 lectures.

Marks out of 100: Assignment I (50%) and Assignment II (50%)

BI 606: Applied and Molecular Immunology

Module Content: The course will focus on the high-end immunology technologies, beginning with an introduction to modern molecular techniques and comprising a comprehensive overview of DNA-, RNA-, protein- and organism-based scientific techniques. Through a series of lectures, students will learn the underlying principles behind technologies such as cloning, DNA footprinting, EMSA, CHIP, reporter gene assays, northern blotting, RT-PCR, real-time PCR, flow cytometry, imaging, immunohistochemistry, immunoprecipitation and the generation of

transgenic animals. In addition, applications of these technologies in the field of immunology, as well as limitations of the techniques, will be described. The course will be supported by practical demonstrations for MSc students of flow cytometry/other technologies.

Course structure: 16 lecture hours, 6 hours practical workshops on cell separation, flow cytometry and animal husbandry.

Marks out of 100:

85 marks for a two-hour written examination at the end of the semester 1, 15 marks for continuous assessment (group assignment).

BI 607: Introduction to Bioinformatics

Module Content: The course will provide a practical approach to familiarise students with a number of bioinformatic approaches through lectures and workshops. In addition, students will be given an introduction to the principals behind database queries, structure, tree construction etc. Lectures will be supported by tutorials with specific assignments designed to reinforce lecture material.

Course structure: 24 lectures and 3 (x 3 hour) workshops

Marks out of 100: 70 marks for a 1.5 written examination, 30 marks for continuous assessment.

BI 608: Vaccines and adjuvants

Students completing this course will be able to propose a rational approach to vaccine design for multiple emerging infectious threats. The course will review mechanisms of immune protection in the context of infectious disease. This will lead into a series of problem-based lectures where we develop the vaccinology toolbox- the approaches necessary for rational vaccine design. There will be extensive mechanistic study of adjuvant and excipient selection and formulation. Having acquired the theoretical skills needed for vaccine design, the bulk of the course will survey the rational design of vaccines in current use. This will begin with the history of polio vaccines (2 lectures) comparing the Salk v Sabin vaccines, the lesser known failed vaccines of the 1930s and the Cutter incident. The course will then survey all vaccines in common use and examine the particular challenges of protecting the neonate in the developing world. The course (4 lectures) will examine the prospects for novel vaccines against the three major infectious diseases of poverty (TB, HIV & malaria). Students will examine emerging infectious disease threats and consider how these might be best tackled. The development path from lab through clinical trials, regulatory affairs, and post licensure in the USA and Europe will be examined. Finally, the logistic elements of a public health immunisation programme will be considered. Students will be expected to perform considerable reading of current literature in vaccinology and prepare a dissertation on a vaccination challenge specific to a resource poor region.

Course structure: 16 lectures, 4 tutorials (including a) how to write a technical report, b how to work effectively in groups, 1 small group assignment, 1 technical report analysing an immunisation problem in a global health setting; prescribed extra reading

Marks out of 100: 100 marks for continuous assessment: Assignment I 50% and Assignment II 50%

BI 611: Seminars in Advanced Immunology and Global Health

Module Objective:

The objective of the module is to develop critical thinking and interpretation skills at an advanced level. Specifically, students are expected to be able to assess recent research findings in the area of Immunology and Global Health and convey such developments to both specialist and non-specialist audiences.

Learning Outcomes

- On successful completion of the module, students should be able to:
- Critically assess and discuss current research findings in Immunology.
- Appraise recent activity in Global health research.
- Interpret scholarly activity in Immunology and Global health for a non-specialist audience.
- Formulate a summary suitable for a specialist academic group.

Teaching & Learning methods

Students will attend two research seminars in the Institute of Immunology per month during semester 1 and 2. During these seminars, talks in the areas of Immunology and Global Health will be presented by specialists in their field. An attendance level of 70% is required to pass this module and students are expected to engage actively with the topic of the talk and the speaker. To this end, reading material will be provided beforehand and a question and answer session with the speaker takes place after each talk. For each talk, two students will be assigned the tasks of introducing the speaker and chairing the Q&A session, respectively. At the end of each semester, students have to submit a written assignment based on one of the seminars given during this semester. The assignment consists of two parts: 1. An article written for a lay audience (e.g. a newspaper article or a blog), 500 words 2. An academic summary of the research presented during the seminar, 1000 words. For both parts of the assignment, the student is expected to consult and incorporate appropriate additional sources of information (e.g. research papers, news articles, position papers, interview with the speaker)

Assessment: Continuous Assessment, 100%

PS 607: Impacting Global Health Systems

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

- Describe ways in which systems, structures, policies, and institutions influence global health, using concepts such as systems thinking and macropsychology.
- Describe the application of core ethical principles to global health.
- Demonstrate knowledge of the role of human rights, social inclusion, equality, and equity in global health.

- Describe the importance of democratic health systems and how patient and public involvement can be achieved.
- Demonstrate an understanding of inclusion and equity across policy processes, including policy development, implementation, monitoring, and evaluation.
- Describe factors that may influence scaling to expand interventions.

Assessment: Continuous Assessment, 100%

BI 609: Immunology Masters Research Project

Students undertake a 12-week research project under the guidance of a supervisor. Students may be provided with a reading list but are expected to perform a literature search to familiarise themselves with the topic assigned. Over the period of the project, students must become competent in the techniques and equipment relevant to the project. Students will also contribute to the academic programme of their laboratory by attending regular seminars and laboratory meetings. On completion of the project, students must submit a thesis outlining their research.

Course structure: 12-week **full-time** (Monday-Friday) research project (supervised) between June and September. Students may be based in MU or elsewhere.

Marks out of 600: 60% for a 15,000 word thesis, 30% for laboratory work, 10% for oral presentation.

Assessment and marking

The course consists of 12 modules, each attracting a mark of 100 (total 1200 marks) and one research project attracting 600 marks. The total marks are 1800.

Assessment is by examinations in January and May, by continuous assessment and on the research project.

Students must achieve an overall minimum of 40% (720 marks) for the award of MSc. In addition, it is obligatory to pass modules BI601, BI602 and the research project module BI609.

There are no repeat examinations.

Penalties: *(for late submission of Course/Project Work etc.)*

Late submission of continuous assessment accepted with penalty (up to 3 days 10%, more than 3 days 25%), in the absence of extenuating circumstances.

AWARDS AND PRIZES

Charles Donovan Prize for best overall performance in MSc programme.

EXAMINATION ASSESSMENT SCALE

Letter Grade	Descriptive Heading	Representative %	Class
A++	Answer which could not be bettered.	100	I
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
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
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
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
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

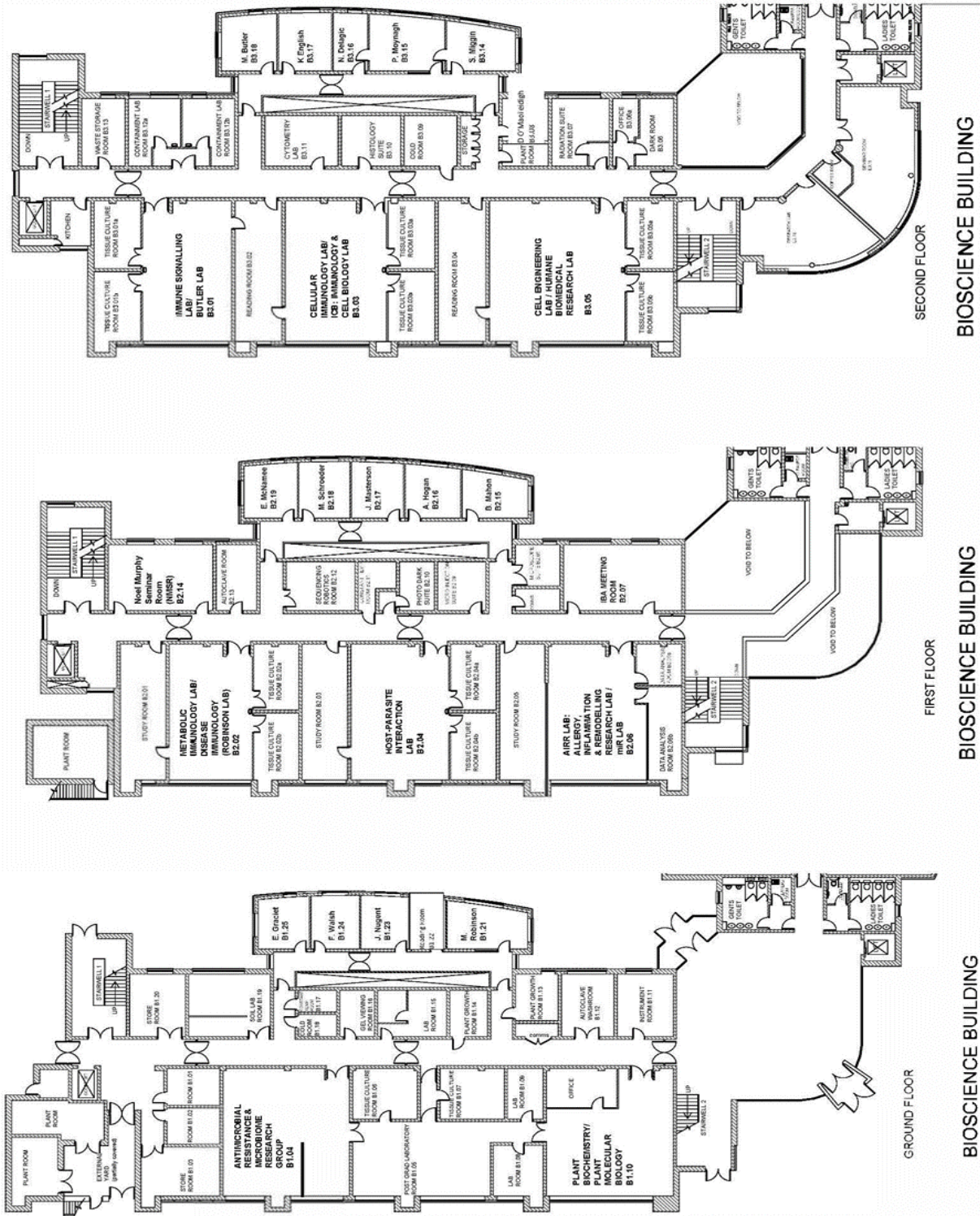
Pass standards for lecture modules

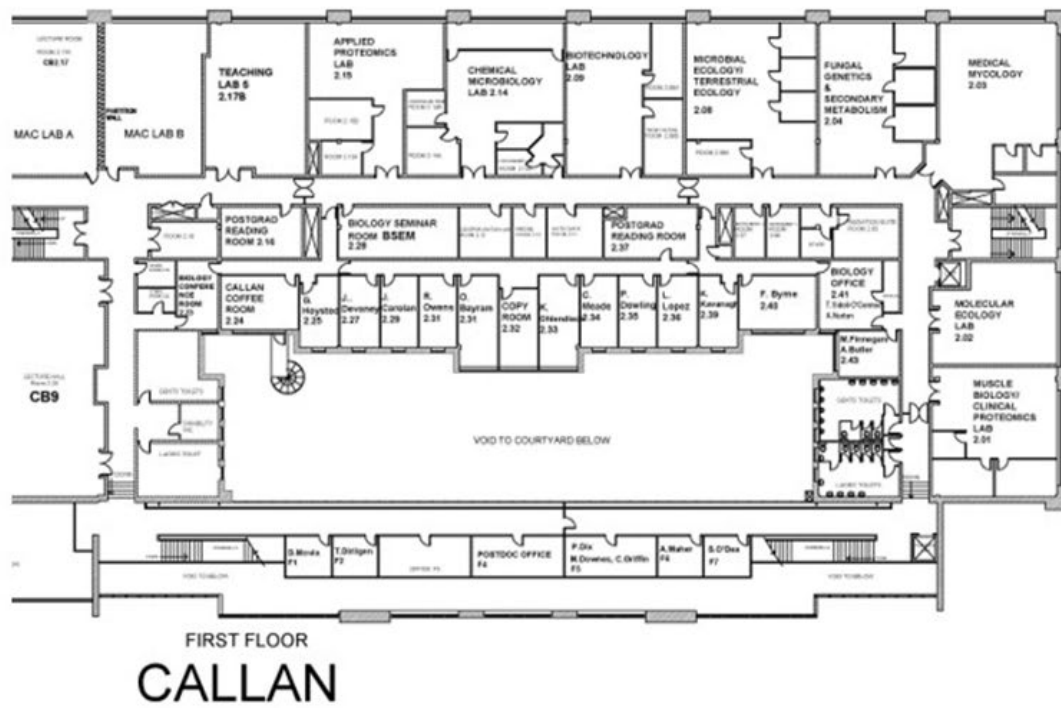
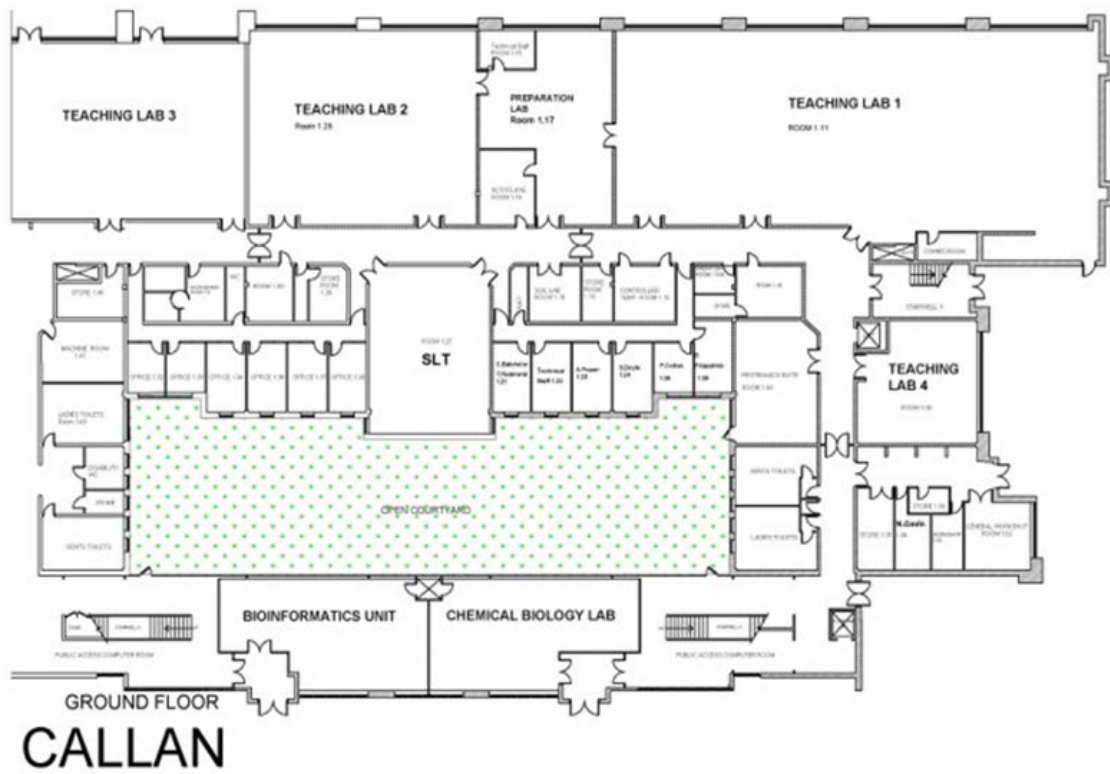
Pass standard	40% or higher
Compensation range	Marks of at least 35%, but less than 40%
Incomplete/Not passed	Marks below 35%

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 BUILDING MAPS





Information for MSc students 2024 – 2025

Calendar 2024-2025

First Semester	
Monday 23rd September	Introductory talk 12 noon. NMSR room, Bioscience building. First floor
Friday 11th October	Deadline for change of registration
Monday 28th October to Friday 1st November	Study week
Monday 4th November	Lectures resume
Friday 20 th December	Conclusion of First Semester Lectures
Monday 23rd December to Friday 3rd January	Christmas Vacation
Monday 6th January to Thursday 10th January	Study Period
10th-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
Third Semester	
Tuesday 4 th June to Friday 16 th August	BI609 lab research project
Friday 30 th August (at 2pm)	Submission of BI609 research project

Before you email staff, Read these guidelines

This communication guideline 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 regard 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 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 very brief during these periods.

Completing YOUR written work (essays/assignments)

Assignment Writing: Your Responsibilities

The goal of written assignments/dissertations/thesis is to show you have developed higher order thinking in synthesizing, analysing and evaluating complex scientific material. 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 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 work/dissertation/thesis.

Thesis Online Resources (TOR) This page is designed to allow you access multiple resources supported by MU and selected external platforms, and is accessible on the Moodle [All Biology Students 2025](#).

Essay/assignment preparation and submission – the *Turnitin* facility

All Biology dissertations at MU must be submitted to the online *Turnitin* Facility on moodle. Please note

- The onus is on you, the student, to validate your work using *Turnitin*.
- You should only submit your completed essays/assignments only when you have checked it on *Turnitin* and are satisfied that your written work is truly your own and not a copy of something else
- Submitted essays/assignments/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

Using *Turnitin* on Moodle - Recap

You will be able to access the *Turnitin* portal via the appropriate module page on Moodle. *Turnitin self-check* will be available on your 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.

Step 1. During essay/assignment **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/assignment is **complete** - use *Turnitin final submission* before the submission deadline

The originality report for this submitted copy will only be available to your essay supervisor.

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. 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

At all times during the preparation of your essays/assignments you can access '[Turnitin Help for Students](https://able.moodle.maynoothuniversity.ie/course/view.php?id=4)' on moodle at <https://able.moodle.maynoothuniversity.ie/course/view.php?id=4>

If you encounter problems using Turnitin, you can contact Moodle Support for further assistance using our email address moodlesupport@mu.ie

Advice on AI /software tools to assist your writing.

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 this. Use of AI or material that has features typical of AI will be subject to additional verification assessment by the academic integrity committee. **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.

Do not use AI tools of any kind for any aspect of your work (eg thesis, dissertations, assignments etc), including the creation of blocks of text (including single paragraphs to complete assignments) and/or submit these as your own work, creation of diagrams, figures or tables or use AI to generate false, or inaccurate references or submit AI-generated false, biased or discriminatory claims.

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. 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.

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

Guidelines for your laboratory research project (BI609)

Your project will provide you with an opportunity to get involved in real research, usually on some aspect of the research already ongoing in your supervisor's laboratory. Your project also gives the examiners and future employers an indication of your ability and your initiative.

A. Choosing your project.

Try to choose a laboratory which interests you and which suits your scientific background and your general lab skills.

B. Project organisation. Initial steps.

- Familiarise 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. However, you are expected to do a literature searches using computers linked to the Internet, either in the Library or in certain cases in your supervisor's laboratory.
- Become familiar with the equipment and experimental techniques that you will require for your project. It is essential that you become competent in all the research techniques to be used before you start proper experiments and make sure you understand the basis of the techniques.

C. Project organization. Lab work.

- Plan experiments carefully following discussion with your supervisor. Make sure suitable controls are included and sufficient replicates of the experiments are carried out.
- Use booking sheets for the equipment in high demand.
- Check time scale of experiments and make sure it fits in with your permitted working hours in the laboratory.
- Make note of all the experimental procedure, including calculations for making up solutions etc.
- Never rely on your memory. Write your results into your notebook immediately; preferably a hardbound notebook not on pieces of paper.
- Analyse your results as you get them. Draw graphs, etc. now 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 that did not appear to work.
- See all experiments through to the end.
- Show courtesy to other workers in your laboratory. Keep your work area clean and tidy; wash glassware and return reagents to shelves, fridges or freezers immediately after use; respect other people's laboratory property: glassware, stock solutions, media, etc. You will also be expected to take part in maintenance rotas during your time in the lab.

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.

Typing. Recommended font is Times New Roman (size 12). You should run a spell-checker. The thesis should be double-spaced. **The thesis should NOT EXCEED 15,000 words in length.** The title page, acknowledgements, declaration, abstract, table of contents, figure legends and bibliography are **NOT** included in the word count. Sometimes students may have many tables of data etc. that they wish to include and these can be added as appendices that are not included in the word count of the thesis.

A research thesis should be organised under the following sections:-

Cover page.

Brief accurate title with scientific names of any organisms used

Statement that the thesis is submitted in fulfilment of the requirements for the degree.

Your name

Address of the Department

Date

Acknowledgments page.

Optional

Declaration.

Certification of originality.

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 and 5. References.

E.g. the first subsection within Materials and Methods would be numbered 2.1, with the appropriate page number in the right hand side.

Abstract.

This should be a maximum of one page 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 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 experiments (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. (See examples of finished Figure and Table which follow).

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.

HARVARD REFERENCING STYLE: 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. All listed references must be cited in the text in parentheses after the relevant section of text. You should give the name of the first Author and *et al.* if more than two authors and the one or two name(s) if only one or two authors, followed by the year of publication (e.g. Smith *et al.*, 1995 or Smith & Jones, 1995). In the reference section, arrange the citations in alphabetical order by first author and in chronological order if there are more than one article by an identical list of authors. The authors name(s) should be followed by initials (not first names in full), followed by the year of publication, the title of the article, the name of the Journal, the volume and the inclusive page numbers of the articles. You must give the complete title of the article or book chapter, but you can use standard abbreviated titles of journals. Examples below; note the reference to a book or book chapter differs in format from the reference to a periodical.

Mahon, B.P., Katrak, K. and Mills, K.H.G. (1992). Poliovirus-specific murine CD4⁺ T cell clones recognise serotype specific epitopes on VP1 and VP3 and cross-reactive epitopes on VP4. *J. Virol.* 66, 1479-1481.

Drafke, M 2009, *The human side of organizations*, 10th edn, Pearson/Prentice Hall, Upper Saddle River, N.J.

TREFTS, K. & BLACKSEE, S. (2000) Did you hear the one about Boolean Operators? Incorporating comedy into the library induction. *Reference Services Review.* 28 (4), pp 369-378.

Internet websites can be used as references, however, these are not peer-reviewed and should be avoided/minimised where possible

At the start of your project, you should devise a filing system (cards, files of reprints or computer programme) for references, which will make it easy for you to collate them in alphabetical order in the final reference section.

Appendix Tables

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.

Lab 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. Therefore, 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 should not 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.

Submission of your BI609 Thesis

Submit your thesis as an online document only to the online Turnitin Facility on the BI609 moodle page. There is no requirement to submit a hard copy print version. Your thesis must follow the text and composition guidelines as guided by your supervisor.

Your thesis should include the BI609 Cover Page, which is available to download on your BI609 moodle page. This must be inserted as page 1 in your final (.doc or .pdf) dissertation submission document.

If you have a serious problem concerning the fulfilment of any assessment deadlines, please consult Dr Sinéad Miggin, Coordinator of the MSc in Immunology and Global Health.

PLAGIARISM & ESSAYS/ASSIGNMENTS/THESIS- Your responsibilities

You 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 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 later, but here are some practical tips to help you:

- You must present a work of scholarship in your own words and diagrams.

- 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.
- If you use a diagram or figure from another person's work, you must cite this in the legend and the bibliography.
- 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.
- If you have paraphrased someone else's argument, data or conclusions, then this must be acknowledged by citation.
- 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.

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 your written work you will be required to sign a declaration stating that you have read and understand the department's Policy on Plagiarism, and that your submission is your own work. Please see the sample BI609 Cover Page at the end of this manual, which will be available for you to download from your BI609 moodle page.

This must be downloaded, signed and placed as page 1 of your final BI609 thesis submission.

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.

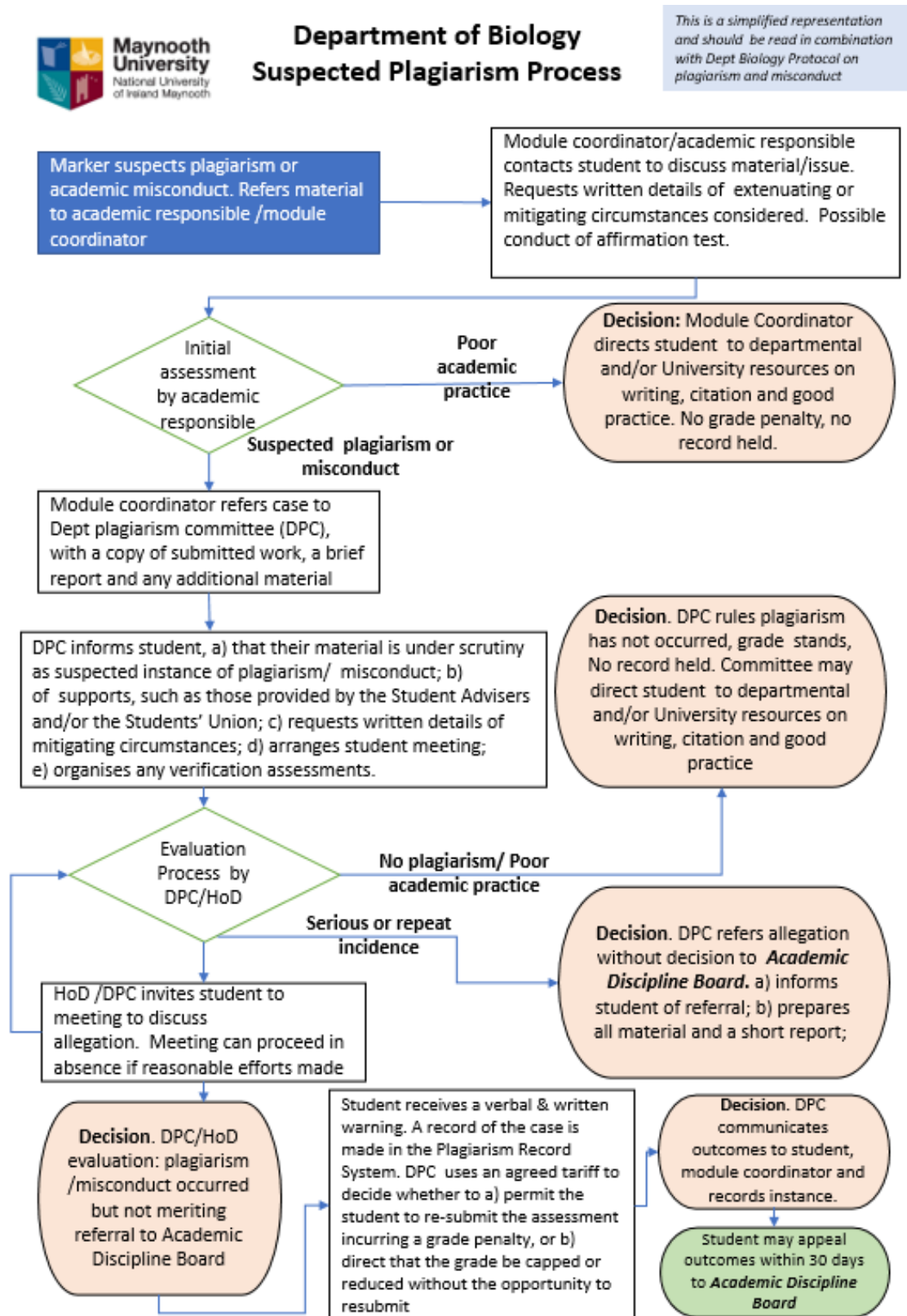
The policies of the University apply within the Department of Biology, as contained on the Maynooth University website (<https://www.maynoothuniversity.ie/university-policies/rules-regulations-students>). Plagiarism is a form of academic dishonesty and will be **treated with the utmost seriousness** wherever discovered.

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:

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 is rare at postgraduate level 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.

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.

If you require a later submission date, you should complete the online *Late Submission Request Form* available via the BLE600_Moodle page. 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 table below gives examples of instances where late submission requests may be considered.

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.

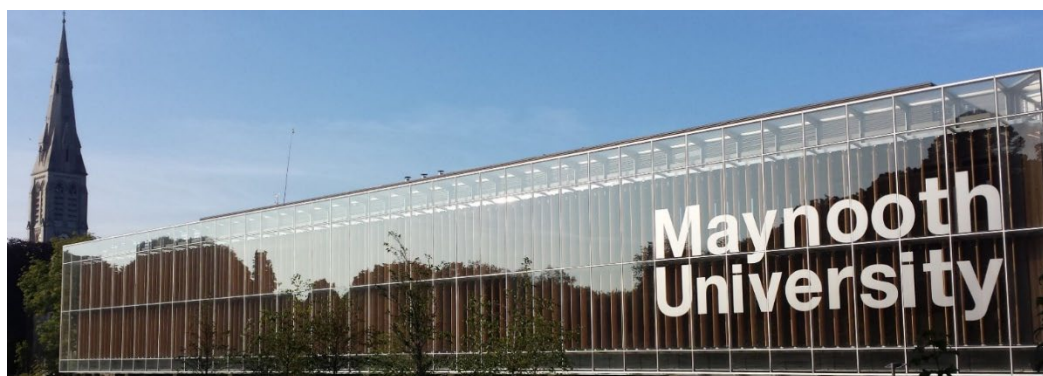
Using the Library as a resource for your study

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!



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.

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/3WLU41>

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

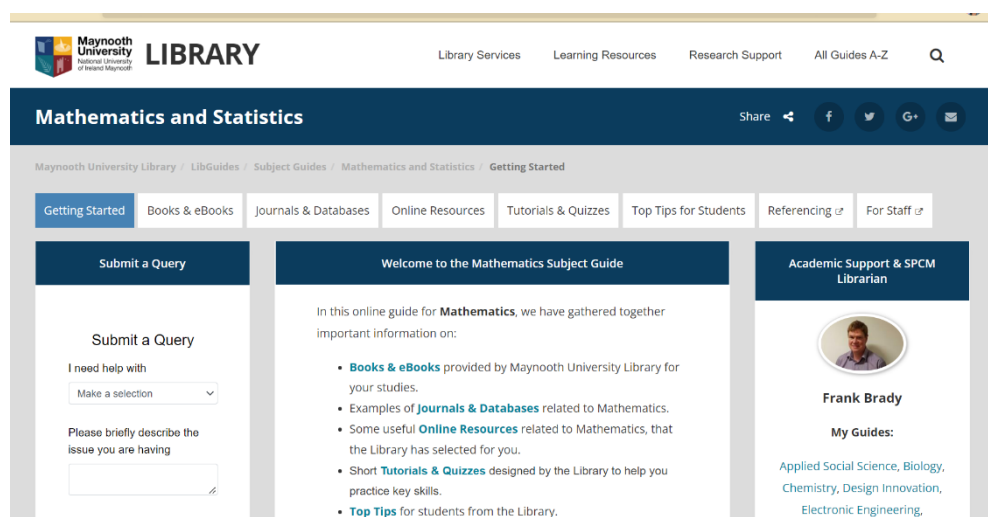
IT Services are available at the Library Information Desk during service hours to help with any IT issues, including photocopying.

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

Fig 1



Using the correct information source is key to success in your studies. Every subject has a **dedicated Subject Guide** on our website (see Fig. 1) that we recommend you look at. The range of subject guides is here:

https://nuim.libguides.com/guides_tutorials and have sections on getting started, recommended books, databases, and links, as chosen by your lecturers. It also has information about reference styles, online tutorials and quizzes, a chance to email your query direct to a Teaching & Learning librarian, and lots of more useful information.

Use **LibrarySearch** (see Fig. 2) on the library homepage to search for specific books or articles, or even to see the range of material that we hold on your topic. The results give you details of e-books and e-journals you can read on your devices (on or off-campus) as well as information about where to find the print books on the library shelves.



Fig. 2: "LibrarySearch" searches the entire collection in MU Library- millions of free eBooks, articles and databases.

Make sure to follow us on **Instagram** @library_mu, **Facebook** @MaynoothUniLibrary or on **Twitter** @mu_library.

[Contact us](#) with your **queries** about

- using the library, finding locations within it, student services,
- finding information for your studies, or
- how to use any of our online content.

USEFUL LINKS AND CONTACTS:

- Library homepage: <https://www.maynoothuniversity.ie/library>

- A-Z of our Subject Guides: <https://nuim.libguides.com/>
- Book a group study room*: https://nuim.libcal.com/booking/MU_GroupStudyRooms
- Online tutorials (LIST online): <http://nuim.libguides.com/list-online>
- Undergraduates' contact: library.information@mu.ie OR Áine Carey/Niall O'Brien, aine.carey@mu.ie



Biochemical Calculations Website: Biochemical™

<http://www.biochemicalc.com>

Students in the Department of Biology now have access to Biochemical™. 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 up 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.

Biochemical™ 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 Biochemical™ 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 Biochemical™ 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 Biochemical™ and please tell others if you're happy with it. If not, please email: biochemical@gmail.com

Biochemical™ was funded by the NUI Maynooth CTL Fellowship Programme

BIOLOGY LABORATORY SAFETY

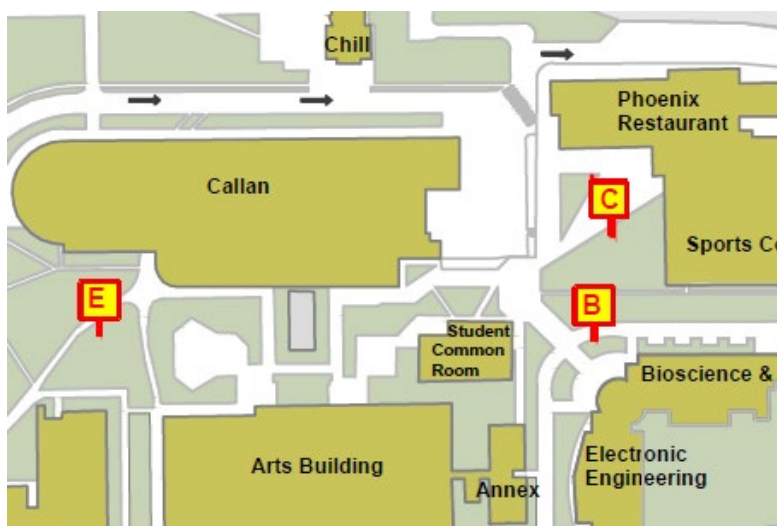
For the protection of yourself and others please read the following notes carefully and obey the instructions. Students taking project work in a research lab should read and comply with the specific additional requirements in their assigned laboratory. It is your responsibility to make yourself aware 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. If you need to transfer samples or equipment to another laboratory, remove one glove and used 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 at all times. Please check with your demonstrator if you have any doubts or questions in relation to safety. Notify your demonstrator or senior demonstrator if you are pregnant, or have any health issues which you feel may be impacted by any practical.

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

- Complete any advance requirements for the practical 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 BI609 Summer Laboratory Projects

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 the full-time summer research project.

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 [All Biology Students 2025 course](#) 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.

- **Keep in touch** with your department should you be absent for a prolonged period.
- **Make up any work** you have missed due to your absence.
- **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.**
- **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 as unacceptable it will be recorded as such and count against the minimum attendance level.
- **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.**
- **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 and</u>

	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
<ul style="list-style-type: none"> • Illness • Displaying COVID-19-related symptoms • Self-isolating due to COVID-19 • Hospitalisation • Outpatients appointment (where possible you should try to make any appointment outside of your class commitments) • Doctor or dental appointment (you should try to make any appointments outside of your class commitments) • Documented personal problems • Illness of dependent or family member (until other arrangements can be made) • Bereavement • 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) • Court attendance or victim of crime • Representing College/county/ country at significant or prestigious event or sport commitment or involvement in such an event 	<ul style="list-style-type: none"> • Oversleeping • Misreading the timetable • Paid employment and voluntary work • IT and/or computer problems • 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 • Holidays • Family celebrations • Weddings • Accommodation issues, e.g. moving house • Extra-curricular sports activities • Driving test • Lack of awareness of attendance requirements and College 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.

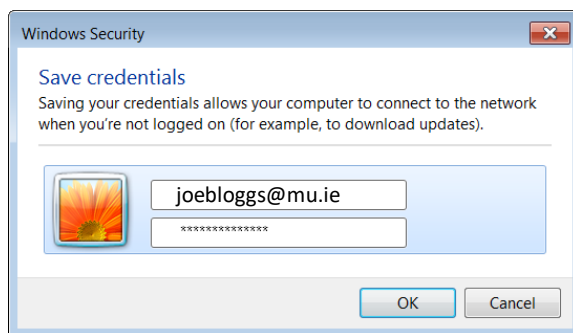
All MCQs are compulsory and failure to sit these exams will result in a **zero** grade. If you foresee that you may not be able to sit an MCQ it is imperative that you contact the lecturer who is setting the exam or the Senior Demonstrator **BEFORE** the MCQ.

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 entitled [All Biology Students 2025](#) a page for recording absence and submitting supporting documentation.

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). [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](#)

Timetable 2024/2025 see links at [Timetables | Maynooth University](#)

Tips from the Biology department on how to get better marks in your MSc degree.

How students fail or underperform

The responsibility is on you to use your time wisely and get the balance right between external work, commitments, socializing and studying for, 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. So you need to be responsible and exercise good judgement in treating your studies seriously, prioritizing study over bar work, or entertainment. Here is some advice from past students who have failed fourth year - learn from their mistakes!!

1. **I missed too many lectures!** 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.
2. **I didn't read my notes soon enough!** I only read my notes just before the exams. If I could, I would read notes soon after the lecture to help me remember.
3. **I failed on really simple stuff because I didn't submit it (Technical Fails)!** Some modules require continuous assessment (CA), these are very straightforward to do at the time, but I missed quite a few because I was focused on a part time job. Suddenly I discovered that I could not pass the module and couldn't resit this in the autumn. DO the CA!
4. **I left things too late.** I only downloaded the moodle extra reading and lecture notes in the few weeks before the exams – but then I couldn't make any sense of it. When I retook the year I looked at notes and extra reading while lecturers were still delivering the module.
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
6. **I never asked questions!** I didn't like to be the centre of attention but I started to ask questions. Lecturers turned out to be really helpful.
7. **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! Every hour of work before study week, is worth four 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).
8. **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.
9. **Don't let gossip freak you out.**

DECLARATION

I have read and understood the Departmental policy on plagiarism.

I declare that this thesis is my own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education.

I confirm that this work is my own and I have not received material or assistance from another individual/professional service or provided material or assistance to another individual.

Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.

Signature:

Date:

SAMPLE COVER SHEET FOR BI609



Department of Biology **BI609**

2024 – 2025

This thesis is submitted in fulfillment of the MSc in Immunology and Global Health Degree.

THESIS TITLE	eg. "Covid-ByeBye": Outcome of Phase III clinical trials for new SARS-Covid-19 vaccine.
SUBMITTED BY:	Your name here
STUDENT NUMBER:	Your student number here
SUPERVISOR:	Supervisor's name here
WORD COUNT:	15,000 (confirmation that count is less than limit)
DECLARATION: In submitting this thesis, I acknowledge that <ul style="list-style-type: none">• I have read and understood the Departmental policy on plagiarism.• I declare that this thesis is my own work and has not been submitted in any form for another degree or diploma at any university or other institution of tertiary education.• I confirm that this work is my own and I have not received material or assistance from another individual/professional service or provided material or assistance to another individual.• Information derived from the published or unpublished work of others has been acknowledged in the text and a list of references is given.	
SIGNATURE (TYPED):	Your name here
DATE:	17/12/2022