



Maynooth University Department of Biology

Second Year
Introductory Manual
2021-2022



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MAYNOOTH UNIVERSITY DEPARTMENT OF BIOLOGY
INFORMATION FOR SECOND YEAR STUDENTS 2021-2022

Please read these notes carefully and keep them safely so that you can refer to them during the year.

The Biology staff extends a warm welcome back; we hope you will enjoy your second year course in the Department of Biology.

AIMS OF THE DEPARTMENT OF BIOLOGY

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.

Calendar 2021 – 2022

FIRST SEMESTER

Wednesday 8th September	Second Year Registration
Monday 20th September	Lectures commence
Monday 25th October to Friday 29 October	Study Week
Monday 1st November	Resumption of Lectures
Friday 17th December	Conclusion of First Semester Lectures
Monday 20 th December to Friday 31 st December	Christmas Vacation
Monday 3rd January to Thursday 6th January	Study Period
Not before Friday 7th January	Examination period commences

SECOND SEMESTER

Monday 31st January	Lectures resume
Monday 14th March to Friday 18th March	Study Week
Monday 18th April to Friday 22 nd April	Easter Vacation
Monday 25 th April	Resumption of Lectures
Friday 6th May	Conclusion of Second Semester
Monday 9th to Thursday 12th May	Study Period
Not before Friday 13th May	Examination period commences

Students can change their **First Semester Selections in the first THREE weeks of Semester 1 and in the first TWO weeks of Semester 2 for all Second Semester selections.**

Changes **will not be made after these deadlines** and students will have to take the modules they had initially registered for on the University System.

2ND YEAR TEACHING RESOURCE CHARGES

CHARGES:

2nd Year Resource fees are exempt for those who paid 1st year fees last academic year.

For all other students a 45 fee is due covering resource charges for the 2 years plus the McGraw Hill licence fee (2year duration)

You may pay this online through “[Biology Shop](https://shop.maynoothuniversity.ie/index.php?app=ecom&ns=catshow&ref=Biology)” any time before 31st October with a credit or debit card:(<https://shop.maynoothuniversity.ie/index.php?app=ecom&ns=catshow&ref=Biology>)

DEPARTMENT OF BIOLOGY STAFF CONSULTATION TIMES

Teaching Staff	Phone ext*	Room	E-mail	Consultation Time
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	6117	2.27	john.devaney@mu.ie	Monday 11.00 - 13.00
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
Dr. Karen English	6290	B3.17	karen.english@mu.ie	Monday 14.00-16.00
Dr. David Fitzpatrick	6844	1.26**	david.fitzpatrick@mu.ie	Monday 15.00-16.30
Dr. Emmanuelle Graciet	6255	B1.25	emmanuelle.graciet@mu.ie	Tuesday 10.00-12.00
Prof. Christine Griffin	3841	2.36	christine.griffin@mu.ie	Tuesday 11.00-13.00
Dr. Andy Hogan	6118	B2.16	andrew.e.hogan@mu.ie	by appointment
Prof. Kevin Kavanagh	3859	2.39	kevin.kavanagh@mu.ie	Mon & Wed 14.00-16.00
Dr. Lorna Lopez		2.25	lorna.lopez@mu.ie	Tuesday 11.00 - 13.00
Dr. Gail Maher	7496	F6	abigail.maher@mu.ie	Tuesday 11.00-12.00
Prof. Bernard Mahon	3835	B2.15	bernard.mahon@mu.ie	Monday 09.00-11.00
Dr. Joanne Masterson	6369	B2.17	joanne.masterson@mu.ie	Monday 14.00-16.00 Sem 2
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	Monday 12.00-13.00
Dr. Sinead Miggin	3855	B3.14	sinead.miggin@mu.ie	Tuesday 12.00-14.00
Prof. Paul Moynagh	6105	B3.15	paul.moynagh@mu.ie	Monday 14.00-16.00
<i>Head of Department</i>				
Dr. Jackie Nugent	3857	B1.23	jackie.nugent@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 10-11.30 Sem 2
Ms. Teresa Redmond		1.21**	teresa.redmond@mu.ie	During practical classes
Dr. Mark Robinson	3860	B1.21	mark.robinson@mu.ie	Wednesday 14.30-15.30
Dr. Martina Schroeder	6853	B2.18	martina.schroeder@mu.ie	by appointment
Dr. 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.

Administrative Offices 2.40,2.41 open daily: 10am-12.45pm; 2-4pm Office e-mail: biology.department@mu.ie

Programme Coordinators:

OMNIBUS SCIENCE:

BIOTECHNOLOGY:

SCIENCE EDUCATION:

BIOLOGICAL & BIOMEDICAL SCIENCE:

INTERNATIONAL COORDINATOR

MAP (MATURE AND ACCESS STUDENTS) ACADEMIC ADVISOR:

POSTGRADUATE COORDINATOR:

MSc IN IMMUNOLOGY & GLOBAL HEALTH:

Dr. Jackie Nugent

Prof. Sean Doyle

Dr. Jackie Nugent

Prof. Kevin Kavanagh

Dr. Paul Dowling

Dr. Joanne Masterson

Dr. Martina Schroeder

Dr. Sinead Miggin

For urgent matters the Programme Coordinators and/or Head of Department may be contacted in their rooms at any time. Please contact biology.department@mu.ie to make an appointment.

MODULE COORDINATOR CONTACT DETAILS

CODE	NAME	Coordinator	e-mail address
BI201	Biochemistry 1	Emmanuelle Graciet	Emmanuelle.graciet@mu.ie
BI203	Animal Physiology	Paul Dowling	paul.dowling@mu.ie
BI204	Evolutionary Biology	Jim Carolan	james.carolan@mu.ie
BI205	Biotechnology Processes 1	David Fitzpatrick	david.fitzpatrick@mu.ie
BI206	Cellular Biotechnology	Karen English	karen.english@mu.ie
BI207	Environmental Biology	Christine Griffin	christine.griffin@mu.ie
BI210	Molecular Biology of the Cell	Joanne Masterson	Joanne.masterson@mu.ie
BI301	Introduction to Immunology	Marion Butler	marion.butler@mu.ie
BI308	Proteomics	David Fitzpatrick	david.fitzpatrick@mu.ie

Second Year Committee: terms and conditions to be decided. Also, the Biology department's gender equality steering committee may engage with the student reps in focus groups during the academic year.

The members may include:

- BI201 and BI210 module coordinators and
- 6 elected second year student academic reps (MSU to hold elections):
 - 2 Science
 - 1 Biotechnology
 - 2 Biological Sciences
 - 1 Science Education
 - 1 Pharmaceutical & Biomedical Science

Problems and matters of interest will be discussed.

If you have issues which you would like to be considered, you should tell your representative

MOODLE

<https://2021.moodle.maynoothuniversity.ie/course/index.php>

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 absences and medical conditions.

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:

- [BI ALLBIOL-All Biology Students 2022](#)

- [BI ABSENCES2NDYEAR - Biology 2nd Year Absence Form](#)

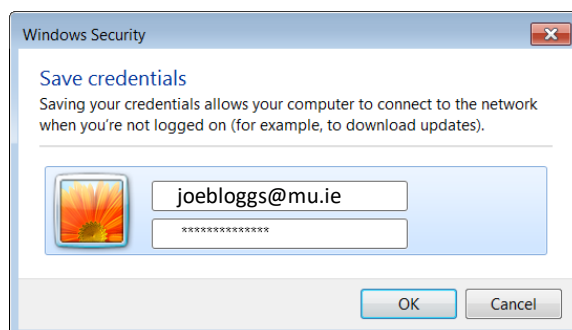
This page is used for recording absence and submitting supporting documentation. You should become familiar with the essentials of MOODLE as soon as possible.

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.

Maynooth IT Services: This year we strongly recommend you avail of the IT Services if you have not already done so, to familiarise yourselves with the word-processing and spreadsheet packages available on all IT computers. The Maynooth IT Services run special courses and tutorials throughout the year. Alternatively, The European Computer Driving License (ECDL), which includes modules on word processing and spreadsheets, is available on network share through the Maynooth IT Services. Further information can be found on the IT Services web pages: <https://www.maynoothuniversity.ie/it-services>

E-mail: You should check your MU email account **on a regular (daily) basis**. Messages to individual students from Staff will normally be made via e-mail, using the student's MU e-mail address. Delete messages regularly to ensure that your e-mail account is not over quota.

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.

If you choose to connect to the wireless network called “Maynooth University” when you start to browse the internet you will be prompted to enter your username and password. Once entered you will have access to network resources. We recommend connecting to the eduroam signal.

BIOLOGY DEPARTMENT – COMMUNICATION GUIDELINES FOR STUDENTS

This document is designed to clarify:

- 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, you should seek to find module information on Course Finder first.
- unless it is an emergency, you should seek to contact your lecturers and module coordinators during normal working hours and days.
- members of staff will do their best to answer new queries within 48 hours (during working days). Please allow at least 48 hours for a reply to your e-mail 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, it may take longer to reply to your e-mail.

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. Each of these platforms have the option of sending notifications. We encourage you to turn on these automatic notifications.

A lecturer or module coordinator may not prioritize replying to your e-mail if the answer is already available to the class.

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 ensure that we provide an environment that promotes learning, some queries are not acceptable and cannot be answered.

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 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).
- 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.

4. 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
- Teams chat on a specific module's Teams group

COURSES/LECTURE MODULE DESCRIPTORS

A brief outline of the courses is given on pages 10-13, however, for a full description including Learning Outcomes please check the course descriptions on the Maynooth University webpage: <http://apps.maynoothuniversity.ie/courses/?TARGET=CS&MODE=SEARCH>

In order to complete second year biology successfully, it is essential to work hard and to study regularly and conscientiously your lecture material, whether it is provided online or in class.

Make sure that you have **your own** good set of lecture notes as lectures provide the framework for the course and exams will be based on them. Getting notes from friends is **not satisfactory**. 'Potted course notes' and 'grinds' should also be avoided. Courses are frequently changed in content and emphasis so there is **no substitute** for your own notes.

It is necessary to read through your lecture notes as soon as possible after each lecture. If there is anything you do not understand sort it out by discussing it with friends, consulting a textbook or asking a lecturer. Supplement your notes with extra information obtained by consulting books. Lecturers, who will be setting and marking the exams, are more impressed with an answer with evidence of extra reading than one which only restates the lecture notes.

Books and Handouts:

There is a wide range of biology books available in the library and as ebooks, many of which provide excellent background material for the course. Lecturers will recommend specific texts to accompany their courses. Handouts are also provided to supplement the material of most lecture courses. Handouts where provided, are intended to **supplement** the lecture material, not as an alternative.

BI201 BIOCHEMISTRY. This module will have a strong emphasis on proteins, the regulation of their activity and their participation to cellular processes. There will also be a particular focus on essential metabolic pathways, which will be described in detail, but also presented within a physiological context. An effort will be made to present simple experimental evidence for essential concepts. Fundamental experimental methods in biochemistry will also be presented (e.g recombinant protein production and protein purification). Tutorials will focus on developing problem-solving and analytical skills. Additional details available at [BI201](#).

BI210 MOLECULAR BIOLOGY OF THE CELL. Major topics covered include: Cell model systems in research; Macromolecular composition of cells; Heredity and DNA as the genetic material; Genes and genomes, organization and structure; DNA replication, DNA damage and repair, transcription and translation in prokaryotes and eukaryotes. The second half of the module will cover the nucleus, the secretory pathway, protein targeting, post-translational modifications, membrane proteins, cell signaling, gene regulation, the cytoskeleton and the cell cycle. Additional details available at [BI210](#).

BI203 ANIMAL PHYSIOLOGY. Topics covered include: principles of molecular, cellular and integrative physiology. An introduction to the organization of nervous systems and endocrine systems in vertebrates. Principles of membrane potential, action potential generation and propagation in neurons. Principles of synaptic transmission. Physiology of contraction in striated and smooth muscle. Physiology of circulatory systems, gas-exchange mechanisms, energy metabolism, osmoregulation and excretion. Physiology of sensory systems including the biology of eye design, colour vision, sound and hearing, mechanoreception, olfaction and taste. Additional details available at [BI203](#).

BI204 EVOLUTIONARY BIOLOGY. Topics covered include: origin of life, origin of eukaryotes, origin of photosynthesis, origin of animals, the colonization of land. Species concepts and modes of speciation. Macroevolutionary patterns and key evolutionary transitions: evolutionary trends and emerging phylogenetic relationships in animals and plants. Population genetics: the Hardy-Weinberg equilibrium; evolutionary forces in natural populations - mutation, migration, natural selection and genetic drift. The McGraw-Hill Connect System will be utilized throughout the module. Additional details available at [BI204](#).

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BI210 MOLECULAR BIOLOGY OF THE CELL. Major topics covered include: Cell model systems in research; Macromolecular composition of cells; Heredity and DNA as the genetic material; Genes and genomes, organization and structure; DNA replication, DNA damage and repair, transcription and translation in prokaryotes and eukaryotes. The second half of the module will cover the nucleus, the secretory pathway, protein targeting, post-translational modifications, membrane proteins, cell signaling, gene regulation, the cytoskeleton and the cell cycle. Additional details available at [BI210](#).

BI205 BIOTECHNOLOGY PROCESSES 1. Introduction to biotechnology concepts and products; Bioreactor design and operation; Bioreactor and media sterilisation; Process biochemistry (downstream processing) including centrifugation, filtration and process-scale protein purification; Lyophilisation. Additional details available at [BI205](#).

BI206 CELLULAR BIOTECHNOLOGY. Topics covered include: Basic anabolic and catabolic pathways in microbial cells, glycolysis, Krebs cycle, oxidative phosphorylation, synthesis of amino acids, nucleic acids, fats, carbohydrates, products of fermentation – ethanol, lactic acid. *In vivo* culture of animal cells: applications of animal cells; production of recombinant proteins, stem cells, bioethical issues regarding use of human stem cells. Stem cell and cell based therapy applications including chimeric antigen receptor (CAR)-T cells. Cell based model systems in disease modelling. Additional details available at [BI206](#).

BI301 Introduction to Immunology. Topics covered include: cellular and non-cellular components of the innate and adaptive immune system, the structure and downstream signalling pathways of the B cell receptor (including VDJ rearrangements), T cell receptor, cytokine receptors and pathogen recognition receptors, the role of the professional antigen presenting cells in initiating the adaptive immune response, the roles of the effector T cells and B cells in the immune response to pathogen, central tolerance, the structure and role of Major Histocompatibility complex (MHC) Class I and Class II molecules, the antigen processing pathways. Additional details available at [BI301](#).

BI207 Environmental Biology. Application of ecological concepts, theories and methods to the management of biological resources. The scope of the course includes topics such as pollution biology; conservation biology; wildlife and habitat management; restoration ecology; and the applied ecology of nuisance species (e.g. pests and invasive species) environmental microbiology and One Health of disease. Additional details available at [BI207](#).

BI206 Cellular Biotechnology. Topics covered include: Basic anabolic and catabolic pathways in microbial cells, glycolysis, Krebs cycle, oxidative phosphorylation, synthesis of amino acids, nucleic acids, fats, carbohydrates, products of fermentation – ethanol, lactic acid. In vivo culture of animal cells: applications of animal cells; production of recombinant proteins, stem cells, bioethical issues regarding use of human stem cells. Plant metabolism and development, role of hormones in regulating plant development and plant cell culture. Additional details available at [BI206](#).

BI308 Proteomics. Topics covered include: Protein characterisation and analysis including one-dimensional/two-dimensional (1D/2D) gel electrophoresis, selective enzymatic/chemical protein fragmentation, peptide purification and amino acid sequencing; Matrix Assisted Laser Desorption/Ionisation- Time of Flight (MALDI-ToF) mass spectrometry; genome database mining; gene/protein identification by alignment protocols; biologicals and biopharmaceuticals; implications of contamination/impurities in therapeutic products. Trends in the production of therapeutic proteins. Additional details available at [BI308](#)

BI203 ANIMAL PHYSIOLOGY. Topics covered include: principles of molecular, cellular and integrative physiology. An introduction to the organization of nervous systems and endocrine systems in vertebrates. Principles of membrane potential, action potential generation and propagation in neurons. Principles of synaptic transmission. Physiology of contraction in striated and smooth muscle. Physiology of circulatory systems, gas-exchange mechanisms, energy metabolism, osmoregulation and excretion. Physiology of sensory systems including the biology of eye design, colour vision, sound and hearing, mechanoreception, olfaction and taste. Additional details available at [BI203](#).

BI204 EVOLUTIONARY BIOLOGY. Topics covered include: origin of life, origin of eukaryotes, origin of photosynthesis, origin of animals, the colonization of land. Species concepts and modes of speciation. Macroevolutionary patterns and key evolutionary transitions: evolutionary trends and emerging phylogenetic relationships in animals and plants. Population genetics: the Hardy-Weinberg equilibrium; evolutionary forces in natural populations - mutation, migration, natural selection and genetic drift. The McGraw-Hill Connect System will be utilized throughout the module. Additional details available at [BI204](#).

BI207 ENVIRONMENTAL BIOLOGY. Application of ecological concepts, theories and methods to the management of biological resources. The scope of the course includes topics such as pollution biology; conservation biology; wildlife and habitat management; restoration ecology; and the applied ecology of nuisance species (e.g. pests and invasive species) environmental microbiology and One Health of disease. Additional details available at [BI207](#).

REQUIREMENTS FOR PRACTICALS

- **Laboratory coat.** You will not be allowed into the lab without a lab coat when chemicals or biological agents are used.
- **Safety glasses** are required when any chemical or biological agent is used. These may be purchased from the outlets above or in the practical session. Prescription glasses are not safety glasses – contact your optician if you want to purchase safety glasses with prescription lenses or your demonstrator if you want to purchase alternative safety glasses which fit over prescription glasses.
- **Plain paper** for drawing and a **hardback binder**. You will be provided with a soft folder in which to hand in your practical work each week.

It is most important that you arrive on time for practical classes. They start with a short explanatory talk giving information necessary for you to be able to carry out the practical. **Late comers may be excluded.**

Usually, a lecturer will introduce the practical. There will be demonstrators to help you.

You will benefit more from the practical if you read the relevant section of the manual **before** the practical.

Each week or as instructed by the lecturer in charge, you will hand your practical write up to the demonstrator allotted to your bench. It will be assessed and returned to you the following week. These assessments form a part of your practical mark at the end of the year.

You should read your practical write-ups so that you can learn from your mistakes and also so that you will be prepared for the questionnaires which make up the bulk of your practical assessment.

Grading of Practical Write-ups

Grading will be out of 100%. Your lecturer will set the marking schemes.

Penalty Points for Late Submission of Write-ups

If a student attends a practical but the write-up is late because of illness, the student should obtain a sick cert and contact the Senior Demonstrator to agree a date for submission. There will be no penalty in this case.

If a student attends a practical but the write-up is late because of any other unavoidable or unforeseen circumstance, the student should contact his/her Module Coordinator.

If a write-up is late for any other reason, the following penalty will apply:

- 25% deduction if late by one week

After this the write-up will be graded for corrections and instruction but NO mark will be awarded for work.

REGULATIONS CONCERNING PRACTICAL CLASSES

- (1) Undergraduate Biology is a largely practical subject. It is **compulsory** that you attend **all** classes and perform the exercises in the Practical Biology set for each class.
- (2) Practical Classes will begin at exactly 14.05 for afternoon session (Wednesday Biological & Biomedical Science Practicals commence at 15.05). Students are expected to be present and prepared with lab coats, safety glasses at this time. For safety reasons usually no admittance will be allowed after these times.
- (3) **Failure to attend and engage in the continual assessment component of your modules will result in a technical fail.**
- (4) Laboratory reports must be handed in for correction on the date instructed. Late submissions will be penalised.
- (5) Health and safety procedures must be adhered to at all times. Instruction from demonstrators and technical staff must be obeyed 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.
- (6) Each student has a responsibility to ensure that all Laboratory Reports are returned with a definite mark/grade by their demonstrator. Any errors should be made known immediately to the demonstrator and/or laboratory co-ordinator. Mistakes cannot be rectified once grades are uploaded onto the university system!
- (7) The Biology Department 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.

PLEASE NOTE THAT THE UNIVERSITY PLAGIARISM POLICY APPLIES TO PRACTICAL CLASSES AND ALL ASSOCIATED REPORT WORK.

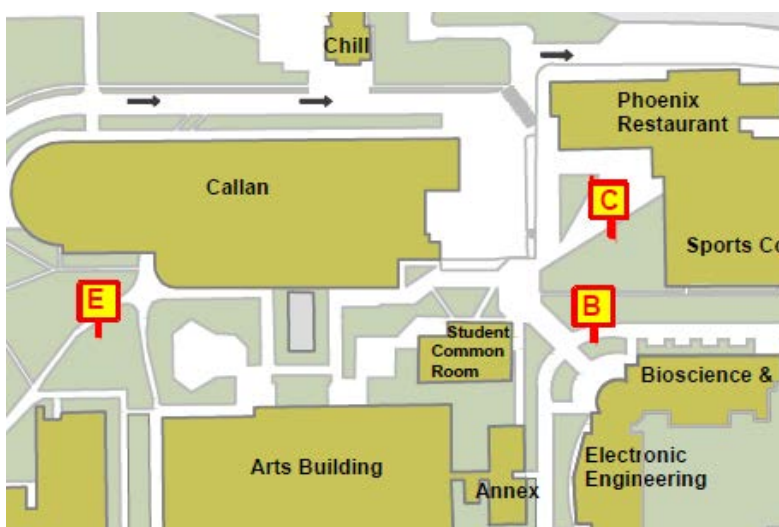
Health and safety procedures must be adhered to at all times. Instruction from demonstrators and technical staff must be obeyed at all times. Failure to do so will result in automatic expulsion from the laboratory and the forfeit of any grades associated with that practical session and an “unexplained absence” will be awarded. Repeat offenders will receive an automatic failure of continuous assessment.

BIOLOGY LABORATORY SAFETY

For the protection of yourself and others please read the following notes carefully and obey the instructions implicitly.

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 the 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.
- You must also wear safety glasses at all times. Please contact your demonstrator if you need to purchase a pair.
- 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.
- 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.

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 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 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, including sink, clean and tidy.

You should be aware that we frequently transport chemicals and biological materials around the department. Therefore, it is very important that you walk slowly and carefully 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 have any health issues which you feel may be impacted by any practical.

REGULATIONS CONCERNING PRACTICAL CLASSES

University safety and public health procedures must be adhered to at all times. Instruction from demonstrators, academics and technical staff must be obeyed 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.

Laboratory safety- COVID-19 Related Issues:

The control measures associated with reducing the risk of COVID-19 transmission may change as the pandemic evolves.

- Do not attend a practical if you have symptoms of COVID-19, or if you have been advised by a medical practitioner or HSE contact tracing staff, to self-isolate or restrict your movement.
- Only attend on your assigned day/time. If this is problematic due to scheduling, please contact the senior demonstrator (patricia.mcdonnell@mu.ie) in advance.
- Do not move from your bench space without the permission of your demonstrator.
- All students are required to disinfect their bench work area and lab equipment before and after each lab session. Tissue and alcohol have been provided at each bench.

Face Coverings and Personal Protective Equipment

- In line with University policy, face coverings are mandatory during practicals and in all indoor locations.
- If you are unable to wear a face mask for medical reasons, contact the University Covid Response Team prior to your arrival on campus, on 01 474 7999 or covid.response@mu.ie, who will advise you and your department(s) on the steps required to mitigate risk for you and others. Following this, you must contact your senior demonstrator prior to attending any practical session. Face shields worn in practicals must meet the same standards (EN166 1 F3) as safety glasses, where safety glasses are required. Face shields below this standard must never be worn with or instead of safety glasses.
- **Put your face covering on before entering the building and only remove it after you have left the building.** It is advisable to have an extra face mask.
- Do not put face coverings on laboratory surfaces or equipment.
- Safety glasses are required when listed as a control measure in the risk assessment specific to each practical. These risk assessments are in your practical manual.
- **It is essential** that you bring your laboratory coat and safety glasses to all practicals where they are required for use (specified in the risk assessment for that practical). Under the current restrictions, the department cannot guarantee the availability of spare lab coats or safety glasses, and you will be prohibited from staying in the practical without these, if they are a requirement.
- Launder your laboratory coat regularly (preferably weekly) in a minimum 60°C wash cycle.
- Gloves must be worn when specified by the practical risk assessment. Not all practicals require gloves. Do not wear gloves to mitigate Covid-19 risks, gloves are more likely to increase the risk of transmission and for some practicals gloves are an unacceptable high risk e.g. in Year 1 with bunsens.

Entering/Exiting the Teaching Lab

- Do not congregate in any building or corridor before or after a practical.

- Go straight into your lab wearing your face covering, do not wait in the corridor, do not put your lab coat on in the corridor.
- Go straight to your designated seat. Seats will be designated during your first practical.
- You will be instructed where to store your personal belongings. Do not bring large bags or suitcases to the laboratory as there are no suitable storage locations in the laboratories for these. Use your locker to minimise the items you bring to the laboratory.
- Scan the **QR** code at your workstation using the Maynooth University Check in App.
- You are not permitted to enter the prep lab, please notify your demonstrator if you require assistance.
- When you have finished your practical work, contact your demonstrator to see if you can leave the lab. You will be instructed when to leave the laboratory.
- Remove your lab coat and pack your bag before leaving the lab.
- You may need to use the hand sinks in the bathrooms to avoid congregation around the laboratory hand wash sinks.
- One-way stairwells are signed as well as routes in corridors. The wider corridors are two-way with a 'keep left' policy.
- Additional or revised control measures will be communicated online or during a practical.
- Any breaches of these regulations or University covid mitigation policies will be reported directly to the University Covid Response Team.

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.

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 09:00-18:00 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 [BI ABSENCES2NDYEAR - Biology 2nd Year Absence Form](#) 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 and/or other relevant supporting documentation. Full instructions on how to do this are available on that 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**. NOTE THAT BACKDATED MEDICAL CERTIFICATES WILL NOT BE ACCEPTED FOR ANY REASON.

Failure to attend and engage in the continual assessment component your modules will result in a technical fail.

No more than **two** absences per semester will be accepted. If you lodge more than two absence certificates in a semester, or if the period of absence extends to three weeks, **you will fail the practical component of the course**, and you may be referred to the Academic Advisory Office, Student Services or to an appropriate member of staff in the department.

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 Course** [Biology 2nd Year Absence Form](#) 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</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. ***If possible you should try to arrange to attend a different session rather than be absent for a lab session.***

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 signalling 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

Please note that the information given below may change in response to updates in Covid-19 guidelines.

Throughout the year you will sit a number of Multiple Choice Questionnaires (MCQs) which are generally comprised of questions that cover a significant proportion of the module. These may be held either on-line through MOODLE, ordinarily during practical classes, or as paper-based, machine readable questionnaires held during lecture times.

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 (see page 14) 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.

Learning Outcome Assessments

Learning Outcome Assessments (LOAs) are short quizzes that test your learning from the previous week's lectures, practicals and activities. These are used in module BI204 and are held online at the beginning of the next practical class.

To sit an LOA you must have attended the previous week's practical. If you miss a practical class you must notify your demonstrator at the beginning of the next practical you attend and you will be allowed to sit the appropriate LOA.

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

Department of Biology Policy on Plagiarism

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.

This policy will be implemented in the following manner:

1. Dealing with Suspected Cases of Plagiarism: Assignment markers will refer suspected cases of plagiarism to the Module Coordinator (or in the case of practical assignments, in first instance to the Academic in charge of practical module); Any student submitting written work for continuous assessment can be asked by the marker or the department to take a further test. This may take the form of an oral examination on the assignment in question and related issues, or the writing of a test paper in controlled conditions. Requiring a student to take such a test does not necessarily imply that plagiarism is suspected.

2. Dealing with Proven Cases of Plagiarism: If there is evidence of plagiarism, the matter will be turned over to the Course Coordinator, who will determine the disciplinary consequences following the guidelines outlined below. **In each case the student may be invited to explain in person** to the Course Coordinator the origin of the material contained in the piece in question.

"Procedures

- i. Where a marker (**or course coordinator**) believes that a case of plagiarism has been identified, the matter shall be referred to the Head of Department with a written report outlining the reasons for suspecting that the work has been plagiarised.
- ii. The Head of Department shall then make an initial finding as to whether or not plagiarism has occurred, taking account of factors including, but not confined to, the extent of the plagiarism, indications of intent to deceive, the student's prior history in this regard, practice within the discipline, and the level at which the student has submitted the work. The Head of Department will not take account of extenuating medical or personal circumstances in making a decision.
- iii. If the Head of Department is the marker who suspects plagiarism has occurred, he or she shall delegate responsibility to a nominee in that department to follow the procedures laid down in this policy
- iv. Where the Head of Department determines that plagiarism has not occurred but there are indications of incorrect citation, the work shall be awarded a grade that takes account of the failure to cite sources correctly, within the overall context of the work as a whole.
- v. Where it is considered right to do so, the Head of Department shall confirm the determination that plagiarism has occurred by making a record of the decision setting out

- the reasons. At this point, the Head of Department shall consult the Registrar's Office, informing the Registrar of the finding, and requesting any information on previous findings in relation to the student. Should prior findings exist, the procedures in xi and xii shall apply.
- vi. Where the Head of Department determines that plagiarism has occurred, a meeting with the student shall be convened to inform the student of the finding.
 - vii. The student shall be advised of the determination by the Head of Department and of the consequences that may unfold and that a response should be received by the Head of Department from the student within ten working days from the date the determination was confirmed.
 - viii. The student shall be advised that failure or refusal to respond within the designated period of time, or failure or refusal to attend for any meeting requested by the Head of Department, will result in the matter being referred to the **Academic Discipline Board of Maynooth University** in like manner as if the student had chosen not to accept the findings of the report.
 - ix. Where the student chooses not to accept the findings of the report, the matter shall be referred to the **Academic Discipline Board of Maynooth University** together with all relevant documentation and reports.
 - x. Where the student accepts the findings of the report, the student shall be asked to sign the report. The Head of Department shall then countersign the report. The Head of Department will then give the work a mark of 0. The student will be allowed to redo the assignment before a designated deadline prior to the next Examination Board meeting, if it is practical to do so. The mark for the resubmitted work will be capped at 40%. A record shall be kept in the Department of the incident, and this shall be forwarded to the Registrar's Office.
 - xi. In the case of a second finding of plagiarism in relation to a student, the matter is automatically referred to the Academic Discipline Board, who shall notify the student that the matter has been brought to its attention.
 - xii. A "second finding" in this regard may refer to findings made in the current academic year or in previous academic years, and it may refer to findings made by more than one Department."

-(Maynooth University Policy on Plagiarism)

2a. Minor Plagiarism: In cases of minor plagiarism, the following will apply:

In instances where an element forming part of an assignment (from a phrase or sentence up to a paragraph or two) is found to be plagiarised, marks will be deducted for that assignment, there will be no possibility of submitting a 'make-up' assignment, and previous and subsequent work submitted in connection with the course may be subject to particular scrutiny. While the amount of marks deducted will be proportionate to the extent of the plagiarised material, the deduction may be severe.

2b. Major Plagiarism: In cases of major plagiarism, the following University statutes will apply:

In instances where a significant part or all of an assignment is found to be plagiarised, the Department will "award a mark of zero in the assignment, with no chance to resubmit in the current academic year" (***Maynooth University Policy on Plagiarism***), and previous and subsequent work submitted in connection with the course may be subject to particular scrutiny. In serious cases the plagiarism will be referred to the **Academic Discipline Board**.

2c. Postgraduate Students: Instances of postgraduate plagiarism will be referred directly to the project supervisor or member of faculty responsible for the relevant postgraduate programme. "Instances of plagiarism among postgraduate research students will be treated as being

particularly serious. The Board will not take into account extenuating medical or personal circumstances in making its decision.” **(Maynooth University Policy on Plagiarism).**

3. Recording: All cases of plagiarism will be recorded by the Course Coordinator on the student’s permanent record card. 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.

EXAMINATIONS

Your second year mark will contribute to your final degree mark. Second year of a four year degree will contribute 10% towards your final degree mark.

Please see the Examinations Office webpage for information (under Policies & Regulations) for Marks and Standards for programmes at Maynooth University: <https://www.maynoothuniversity.ie/exams>.

Continual Assessment & Theory Exam

Second year modules have a continual assessment component and a theory exam. Details for each module can be found <http://apps.maynoothuniversity.ie/courses/>

Penalty Points for Late Submission of Write-ups

If a student attends a practical but the write-up is late because of illness, the student should obtain a sick cert and contact the Senior Demonstrator to agree a date for submission. There will be no penalty in this case.

If a student attends a practical but the write-up is late because of any other unavoidable or unforeseen circumstance, the student should contact his/her Module Coordinator.

If a write-up is late for any other reason, the following penalty will apply:

- 25% deduction if late by one week

After this the write-up will be graded for corrections and instruction but NO mark will be awarded for work.

Questionnaires:

These are usually MOODLE or machine readable Multiple Choice Questionnaires (MCQs) or short questions requiring short answers. The results will be placed on MOODLE as soon as possible after each questionnaire. Questionnaire marks may count for up to ½ of your total continual assessment mark. Note that questionnaires **will normally not** be repeated.

PREPARATION FOR EXAMINATIONS

- **Preparation for examinations should begin from the first day of the first term.** Steady work throughout the semester is more likely to bring success than cramming for a few weeks before the exams.
- Make absolutely sure that you have a good set of lecture notes, as the lectures provide the framework for the course and exams will be based on them. You **must understand all the lecture material**. If you understand everything as you go along you will find it much easier to learn it during revision.
- Make use of the library or the books recommended by the lecturer, to fill out the lecture material, and make supplementary notes from these. Lecturers, who will also be setting and marking the exams, are usually more impressed by an answer with evidence of extra reading than one which merely restates the lecture notes. This is especially important for entry into honours.
- Begin your final revision for examinations in good time. If you leave it too late you will set yourself an impossible workload, leading to panic or undesirable practices, such as question spotting or omitting sections of the course.
- Make sure that you go into the examinations **having learned the whole course**. It is the only way to be sure of being able to answer any of the questions set. If you wish to "spot" questions do so only after you have got a good grasp of the course as a whole, then it may be worth giving **extra** attention to the areas that you guess may come up in the examination.

You might find it helpful to practice answering previous exam questions under examination conditions (without texts or notes and in the time allowed in an exam). Lecturers are generally willing to correct and criticise these for you.

- Make sure that you have everything that you might need in the examination well before. You require pens, pencils, rubber, ruler and perhaps some coloured pens or pencils.

In the examination:

- Read the paper carefully - including the rubric (instructions above the list of questions). Make a preliminary decision as to which questions you are going to answer.
- Start with a question you feel confident about. Think carefully about what the question is asking for and answer **the question as set** - not one that you think should have come up. You might find it helpful to begin by making **short** notes on your answer. Also, if you think of something, whilst you are writing your answer, that you want to include later, keep a note of it so that you don't forget. Complete your answers making sure that you follow instructions.
- **ANSWER THE CORRECT NUMBER OF QUESTIONS. This cannot be too strongly emphasised.**

If you answer less than this you greatly reduce your chances of passing or doing well.

- There is no set length for examination answers. In general you should expect your answers to reflect the amount of writing time.
- It is often helpful to illustrate your answers. Diagrams can give a clearer and much more economical presentation of some points though they will often need to be complemented by text. Where you are asked to give an illustrated account, drawings are essential.
- It is important that you

Record exactly the numbers of the questions you have answered on the front of your examination paper, as well as at the start of each question.

EXPERIENTIAL LEARNING AT MAYNOOTH

Experience More During Your Time at MU

The routes available to Maynooth students to experience more from their degree programme are diverse, enabling the development of rich learning experiences that connect classroom content with real-world experience. The Experiential Learning Office connects Maynooth students to a range of opportunities in the following areas.

Professional Development and Employability

Experiential learning professional development and employability modules are available to eligible second year students. The key purpose of these modules, involving a number of employers, is to facilitate students in their academic, personal and professional career development, so that they will be well equipped to secure internships and to successfully enter the graduate labour market.

See Skills for Success EX201 and EX202 for more details

MU SPUR (Summer Programme for Undergraduate Research)

An active research based and paid experiential learning programme for successful undergraduate pre-final year student applicants who **wish to learn more about the postgraduate experience, by** working closely with faculty mentors on research projects across a range of disciplines.

Community Based Service Learning

Community Based Service Learning presents a credit-bearing academic experience that empowers students to engage with their surrounding communities, which often results in enhancing student's academic, civic, social and personal development, whilst they contribute to the common good. The experiential learning office facilitates academic staff in offering community based service learning experiences with their students.

For further information, refer to:

Website: <https://www.maynoothuniversity.ie/experiential-learning-office>

Email: Aisling.Flynn@mu.ie

Tel: + 353 1 4747760

PROGRAMME ADVISORY OFFICE

For Programme choices and options information

The Programme Advisory Office, within the Office of the Dean of Teaching and Learning, is available to advise you on any choices you might have to make related to your programme including subject choice. The Programme Advisory Office acts as a guide to students as you navigate your own way through your programme options. The Programme Advisory Office consists of the Programme Advisor, Caitriona McGrattan, who is supported by a team of PG students during peak times.

Continuing second year students may also avail of the service if you are unsure about your programme options, for example if you have any questions about the difference in major/minor pathways or whether or not to choose to take an Elective.

The Programme Advisory Office can be contacted via

Email: programme.choices@mu.ie

Telephone: 01 474 7428

In person: please see their website for information about meeting a member of the Programme Advisory Team

<https://www.maynoothuniversity.ie/programme-advisory-office>

DEPARTMENT OF BIOLOGY STAFF RESEARCH INTERESTS

Name & Qualifications	Key Words	Research Interests
Dr O. Bayram, MSc PhD	Secondary metabolism, Mycotoxins, Fungal development, Cell signaling, Epigenetics, Gene expression, Protein-protein interactions	https://www.maynoothuniversity.ie/biology/our-people/ozgur-bayram#2
Dr M.P. Butler BSc PhD	Cancer, Neurodegenerative Diseases, Toll-like Receptor Signalling	https://www.maynoothuniversity.ie/biology/our-people/marion-butler#2
Dr J.C. Carolan B.A (Mod) PhD	Proteomics, Mass Spectrometry, Genomics, Molecular Biology	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
DrP. 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, <i>Aspergillus fumigatus</i> , proteomics, nonribosomal peptide synthesis, oxidative stress, immunoassays and enzymology.	https://www.maynoothuniversity.ie/biology/our-people/sean-doyle#2
Dr K. English MSc PhD	Cellular therapy, mesenchymal stem cells, immune modulation, pre-clinical models of inflammatory disease, organ transplantation	https://www.maynoothuniversity.ie/biology/our-people/karen-english#2
Dr D.A. Fitzpatrick BSc PhD	Computational Biology, Bioinformatics, Genome Evolution, Phylogenomics, Genomics, Transcriptomics, Proteomics, Fungi, Metabolic pathways, Genome sequencing, oomycetes.	https://www.maynoothuniversity.ie/biology/our-people/david-fitzpatrick#2
Dr E. Graciet MSc PhD	Protein degradation, ubiquitin system, biochemistry, plant molecular biology, plant development, plant-pathogen interactions	https://www.maynoothuniversity.ie/biology/our-people/emmanuelle-graciet#2
Professor C.T. Griffin BSc PhD	Behaviour, symbiosis, physiology and biogeography of invertebrates (insects and their nematode parasites); nematode pheromones	https://www.maynoothuniversity.ie/biology/our-people/christine-griffin#3
Dr A. Hogan BSc PhD	Immunology, obesity, metabolism, immunometabolism	https://www.maynoothuniversity.ie/biology/our-people/andrew-hogan#2

Name & Qualifications	Key Words	Research Interests
Professor K.A. Kavanagh BSc PhD	<i>Aspergillus, Candida</i> , Fungi, Innate immunology, Insect, Medical mycology, metal-cell interactions, Proteomics	https://www.maynoothuniversity.ie/biology/our-people/kevin-kavanagh#3
Dr L. Lopez BA PhD	Genomics, Neurodevelopmental Disorders	https://www.maynoothuniversity.ie/biology/our-people/lorna-lopez#2
Dr A.M. Maher (Contract)	Entomopathogenic nematode, microbes, symbiosis, biodiversity	https://www.maynoothuniversity.ie/biology/our-people/abigail-maher#2
Professor B.P. Mahon BSc PhD	Cell Biology, Immunology, mesenchymal stem cells, immune modulation	https://www.maynoothuniversity.ie/biology/our-people/bernard-mahon#2
Dr J. Masterson BSc PhD	Allergy, Inflammation, Epithelial Cell Biology, Remodeling, Mucosal Barrier	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	Ecology, Molecular Ecology, population genetics and systematics of plants	https://www.maynoothuniversity.ie/biology/our-people/conor-meade#1
Dr S. Miggin MSc PhD	Innate immunity, toll-like receptors, inflammation, Type-2-Diabetes, Osteoarthritis	https://www.maynoothuniversity.ie/biology/our-people/sinead-miggin#2
Professor P. Moynagh BA(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, developmental biology	https://www.maynoothuniversity.ie/biology/our-people/jackie-nugent#3
Professor K. Ohlendieck DipBiol PhD DSc	Skeletal muscle biology, proteomics, biomarker discovery	https://www.maynoothuniversity.ie/biology/our-people/kay-ohlendieck#3
Dr S. O'Dea BSc PhD	Epithelial immunology, lung disease	https://www.maynoothuniversity.ie/biology/our-people/shirley-odea#3
Dr R. Owens BSc PhD	Pathogenic fungi, secondary metabolites, proteomics, comparative metabolomics	https://www.maynoothuniversity.ie/biology/our-people/rebecca-owens#3
Dr M. Robinson BBioMedSc PhD	NAFLD, ALD, NK cells, liver cirrhosis, tissue-resident immune cells, immunosenescence	https://www.maynoothuniversity.ie/biology/our-people/mark-robinson#2

Name & Qualifications	Key Words	Research Interests
Dr M. Schroeder BSc PhD	Pattern recognition receptor signaling, Host-pathogen interactions, type I interferons, breast cancer, drug development	https://www.maynoothuniversity.ie/biology/our-people/martina-schroeder#2
Dr F. Walsh BSc PhD	Antibiotic resistance, microbiomes, infectious diseases, bacteriology, metagenomics	https://www.maynoothuniversity.ie/biology/our-people/fiona-walsh#2

UNIVERSITY SUPPORTS & 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](#)

Map of Campus

[Callan Building](#)

[Bioscience Building](#)

[Campus Map](#)

MU Library

MU Library is a popular place to meet, study and research in with a variety of study spaces, meeting rooms and a Starbucks located on the ground floor. It provides [bookable group study rooms](#) for students as well as a postgraduate room on Level 2. It's also a portal to a vast collection of Biology resources in print and online through its searchable catalogue. The [library homepage](#) has a comprehensive range of information, training, supports and services that you can explore: <https://www.maynoothuniversity.ie/library> but there's also a dedicated [Biology subject guide](#) on our webpage that we recommend you use and bookmark, because we highlight new Biology-specific material and news regularly in this space for undergraduates, postgraduates and academics. We've developed a "[New2MU](#)" link that contains lots of information specific to those starting out in MU for the first time, from undergraduates to postgraduates.

<https://www.maynoothuniversity.ie/library>

Programme Advisory Office

The Programme Advisory Office is available to advise you on any choices you might have to make related to your programme including subject choice.

Programme.choices@mu.ie

Timetable 2021/2022

[2nd Year timetable](#)

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.

ATHENA SWAN

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 Bronze Department Award for our approaches and we are working hard to achieve Silver. We look forward to engaging with all members (students and staff) of the department as we implement our Gender Equality Action Plan.

In line with our equality diversity and inclusion focus, 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 Biology department's Gender Equality Action Plan, see <https://www.maynoothuniversity.ie/biology/athena-swan> or contact Dr. Mark Robinson (Biology Athena SWAN Committee Chair) at Mark.Robinson@mu.ie

September 2021

Biology Department Athena SWAN Committee



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 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.

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

REGISTRATION COURSE LIST

SUBJECT: BIOLOGY
2nd

Year of Study:

Qualification: BSc Honours
BSc (Biological & Biomedical Sciences)
BSc (Science Education)
BSc (Physics with Astrophysics)

Registration will take place on line, as instructed by the Registrar's Office. This document is for information only.

You must take all compulsory modules listed below if you are continuing Biology into 3rd year. You must take a total of 20 Credits.

Module name	Credits	Semester	Module code
Semester 1 – Compulsory Modules You are required to take all compulsory modules			
Biochemistry 1	5	1	BI201
Animal Physiology	5	1	BI203
Semester 2 – Compulsory Modules You are required to take all compulsory modules			
Molecular Biology of the Cell	5	2	BI210
Evolutionary Biology	5	2	BI204

ELECTIVES: Students may choose to take an elective pairing (two 5 credit modules) in lieu of two 5 credit optional modules in one of their subjects if they wish.

Students who choose to take an elective pairing in Biology **CANNOT PROGRESS** in *EITHER* Biology *OR* Biological & Biomedical Science.

Registration for electives will be subject to enrolment limitations, and also must be compatible with the timetabling and other requirements of your main subjects. Some combinations of electives and subjects are excluded.

Module name	Credits	Semester	Module code
Semester 1 – Compulsory Modules You are required to take all compulsory modules			
Biochemistry 1	5	1	BI201
<i>Elective</i>	5	1	See coursefinder in your chosen degree
Semester 2 – Compulsory Modules You are required to take all compulsory modules			
Molecular Biology of the Cell	5	2	BI210
<i>Elective</i>	5	1	See coursefinder in your chosen degree

Registration for Modules

SUBJECT: BIOTECHNOLOGY

Year of Study: 2nd

Qualification: BSc (Biotechnology);
BSc (Chemistry with Pharmaceutical Chemistry)

Registration will take place on line, as instructed by the Registrar's Office. This document is for information only.

You must take all compulsory modules listed below. You must take a total of **20** Credits.

Module name	Credits	Semester	Module code
Semester 1 – Compulsory Modules You are required to take all compulsory modules			
Biochemistry 1	5	1	BI201
Biotechnology Processes 1	5	1	BI205
Semester 2 – Compulsory Modules You are required to take all compulsory modules			
Molecular Biology of the Cell	5	2	BI210
Cellular Biotechnology	5	2	BI206

Registration for Modules

SUBJECT: **BIOLOGICAL SCIENCES**

Year of Study: **2nd**

Qualification: **BSc (Biological & Biomedical Sciences)**

Registration will take place on line, as instructed by the Registrar's Office. This document is for information only.

You must take all compulsory modules listed below. You must take a total of **20** Credits.

Module name	Credits	Semester	Module code
Semester 1 – Compulsory Modules You are required to take all compulsory modules			
Environmental Biology	5	1	BI207
Introduction to Immunology	5	1	BI301
Semester 2 – Compulsory Modules You are required to take all compulsory modules			
Cellular Biotechnology	5	2	BI206
Proteomics	5	2	BI308