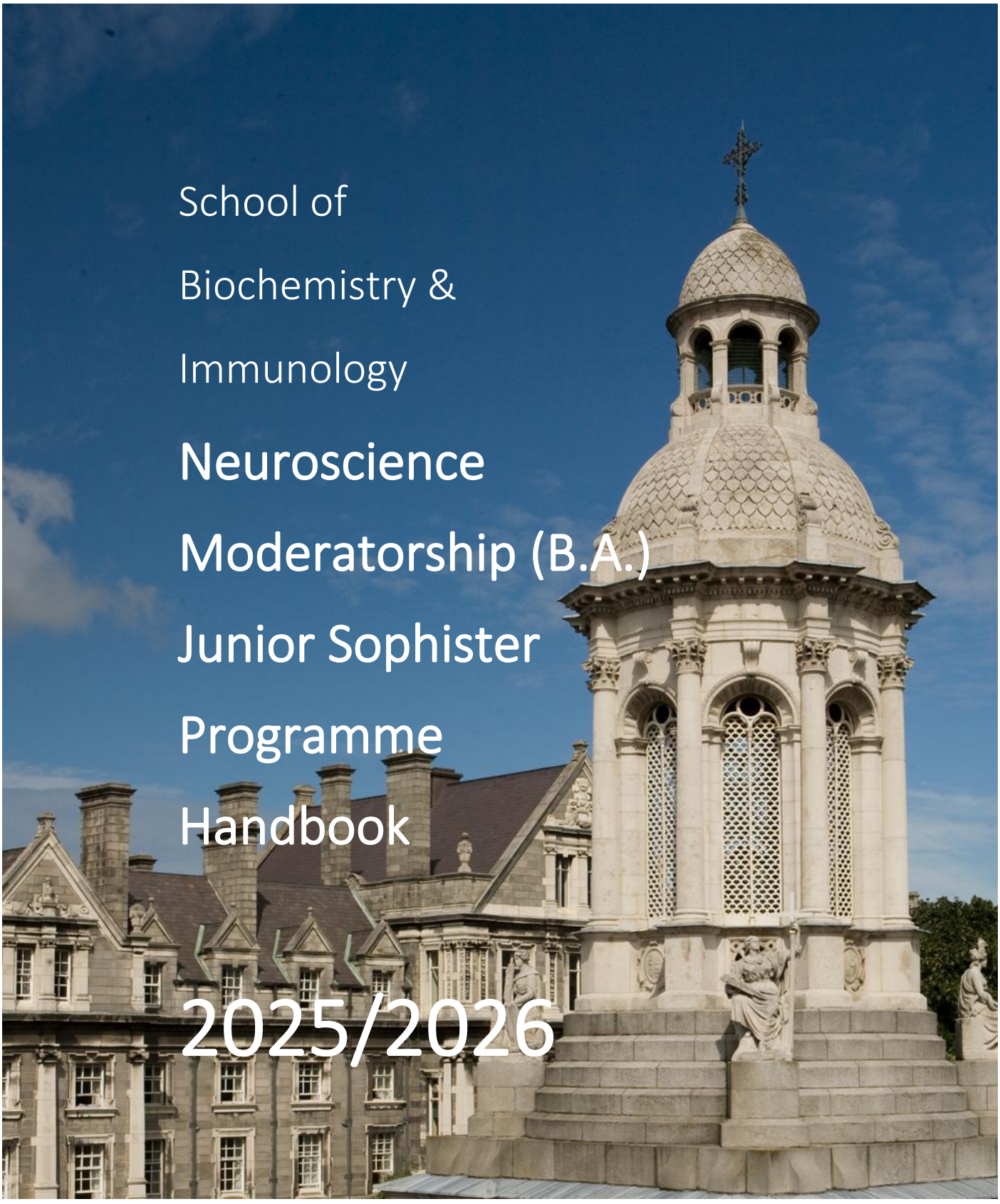
Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



School of
Biochemistry &
Immunology

Neuroscience Moderatorship (B.A.) Junior Sophister Programme Handbook

2025/2026

Contents

Alternative formats of the Handbook can be made on request.

1. General Course Information

1.1 Introduction

Welcome to the Neuroscience Program at Trinity College. Neuroscience is a discipline that is devoted to the scientific study of the nervous system and is at the interface between biology and psychology. It includes study of the nature and functioning of the nervous system at all levels, from the molecules that make up individual nerve cells, to the complexities of how behaviour, thoughts and emotions are produced. Neuroscience is unique in that it makes use of a variety of methods and investigations from a wide range of traditional disciplines. Understanding the functioning of the nervous system requires an integrated knowledge of anatomy, physiology, biochemistry, molecular biology, pharmacology, and psychology. Consequently, although the degree is housed within the School of Biochemistry and Immunology, the Sophister Neuroscience program is comprised of courses from all these disciplines and is the only degree in Trinity to be taught by lecturers from all three faculties.

In the Junior Sophister year, our aim is to lay a solid foundation in the various disciplines that make up Neuroscience but will also begin to really delve into the integration of circuits in the brain and to examine how the brain generates behaviour. In addition, the Junior Sophister year will give you experience in data handling, biostatistics, experimental design, computing, written and oral communication skills, and interpretation and critical analysis of scientific research papers. The 'open modules' in *Cell Physiology and Pharmacology*, in *Biochemistry for Biosciences* and in *Human Neuropsychology* are essential underpinning for the core Neuroscience curriculum and these three are strongly recommended. Thus, you will be well prepared for the Senior Sophister year. **It is also important to remember that your Junior Sophister marks contribute 30% to your final degree.** The Senior Sophister year will take you deeper into some of the areas you explored in the Junior Sophister year but also will take on new areas like glial biology, neuroimmunology and neurodegenerative & neuropsychiatric conditions, as well as undertaking a major capstone project in one of the many research labs that make up the neuroscience community in Trinity.

This *Handbook* has been prepared as a guide to the Junior Sophister year, and contains information regarding the course content, course assessment, reading lists, plagiarism and basic laboratory information. Due to the multidisciplinary nature of Neuroscience, the Junior Sophister

year will be demanding and will require you to be committed to your course. Students are expected to work hard and to take responsibility for their learning. However, you should always feel free to seek advice and guidance from members of teaching staff, who may be contacted in their respective departments, or in the TCIN building.

In addition to learning within the context of formal lecture and practical sessions, I encourage co-operation with your fellow students, so as you can learn from each other along the way. You should not consider helping one of your classmates as a waste of your time, but rather as revision for yourself!

I wish you every success over the next two years.

Dr Roisin McMackin

1.2 Contact Details

The following is a guide of who to contact for various issues. If you send an e-mail outside of working hours, even if urgent, do not expect it to be seen until working time commences.

A typical response time is **~5 working days** (i.e. excluding weekends, evenings and bank holidays) and follow up emails in the absence of a response should not be sent within this period unless urgent. **Please avoid simultaneously sending multiple emails to different people within this list** seeking resolution to the same issue, unless the issue requires coordination of multiple staff members, as to do so may cause confusion and issues addressing your query.

Your college tutor (differs for each student) – If you are struggling to keep up with your coursework, need to seek permission to defer an end of term exam, or have other personal issues during your academic work.

Module coordinator (specific to each module, see modules in this handbook) – If you have a query about the content, deadlines, exam format or anything else pertaining to an individual module/set of lectures.

Course administrator (Gabrielle McCabe, gamccabe@tcd.ie) – If you are having issues accessing/viewing your timetable, or exam results (such as on my.tcd.ie), wish to request transcripts of results, or view your exam script after marks have been released.

Academic registry (academic.registry@tcd.ie, https://www.tcd.ie/academicregistry/) – If you are having issues with fee payment, course registration, student ID cards or other matters regarding your status as a student at TCD.

Student counselling service (student-counselling@tcd.ie) – If you are personally struggling or need help with your mental health.

College health ((01) 896 1999 or (01) 896 1317) – If you need a medical certificate, or need a (free) GP/nurse appointment.

JS course coordinator, Dr Roisin McMackin (mcmackro@tcd.ie) - If you have queries about the overall course, such as the term/year structure, or the course contents.

SS course coordinator, Dr Colm Cunningham (cunninco@tcd.ie) - If you have queries about the SS year, such as queries about next year's term/year structure, or the course contents.

REQUESTING ACADEMIC REFERENCES

If a student would like to request a reference, they should send an email to make the request and provide the staff member with the following:

- details of the course, job, internship, PhD/MSc application etc.
- details of the type of reference (letter, completion of section on application form etc.) required and the mode of submission (upload to website, email etc.).
- a copy of their current *Curriculum Vitae.*
- a copy of their personal statement, or application letter where appropriate.
- a minimum of **2 weeks' notice** for provision of the reference.

1.3 Key Locations

Some locations you may need to attend include:

Administrative Office for Biochemistry and Immunology: Room 307, Level 3, Trinity Biomedical Sciences Institute

LB11 lecture theatre: Level -2 of the Lloyd Institute, main campus.

Tercentenary lecture theatre: Level 2, Trinity Biomedical Sciences Institute

Physiology teaching laboratory: Level 2, Trinity Biomedical Sciences Institute

Biochemistry teaching laboratory: Level 3, Trinity Biomedical Sciences Institute

Lecture notes (online): tcd.blackbloard.com

Interactive College Map

Blackboard

Academic Registry

1.4 Key Dates

The most up to date version of the Academic Calendar for 2025-2026 can be found here:

Academic Year Structure

Academic Year Calendar
2025/26

Academic Calendar Week	Week beginning	2025/26 Academic Year Calendar		Term / Semester
		UG continuing years / PG all years	**UG new first years**	
1	25-Aug-25	Reassessment 2024/25- Semesters 1 & 2		←Michaelmas Term begins/Semester 1 begins
2	01-Sep-25	Marking/Results		
3	08-Sep-25	Marking/Results and Orientation (PG, Visiting, Erasmus)		
4	15-Sep-25	Teaching and Learning	Orientation (JF UG)	←Michaelmas teaching term begins
5	22-Sep-25	Teaching and Learning	Teaching and Learning	
6	29-Sep-25	Teaching and Learning	Teaching and Learning	
7	06-Oct-25	Teaching and Learning	Teaching and Learning	
8	13-Oct-25	Teaching and Learning	Teaching and Learning	
9	20-Oct-25	Teaching and Learning	Teaching and Learning	
10	27-Oct-25	Study/Review (Monday, Public Holiday)	Study/Review (Monday, Public Holiday)	
11	03-Nov-25	Teaching and Learning	Teaching and Learning	
12	10-Nov-25	Teaching and Learning	Teaching and Learning	
13	17-Nov-25	Teaching and Learning	Teaching and Learning	
14	24-Nov-25	Teaching and Learning	Teaching and Learning	
15	01-Dec-25	Teaching and Learning	Teaching and Learning	
16	08-Dec-25	Revision / Assessment*	Revision / Assessment*	←Michaelmas Term ends Sunday 14 December 2025/Semester 1 ends
17	15-Dec-25	Assessment*	Assessment*	
18	22-Dec-25	Assessment* / Christmas	Assessment*/ Christmas	
19	29-Dec-25	Christmas Period - College closed 24 December 2025 to 1 January 2026 inclusive	Christmas Period - College closed 24 December 2025 to 1 January 2026 inclusive	
20	05-Jan-26	Foundation Scholarship Examinations	Foundation Scholarship Examinations	
21	12-Jan-26	Marking***	Marking***	←Hilary Term begins/Semester 2 begins
22	19-Jan-26	Teaching and Learning	Teaching and Learning	←Hilary teaching term begins
23	26-Jan-26	Teaching and Learning	Teaching and Learning	
24	02-Feb-26	Teaching and Learning (Monday, Public Holiday)	Teaching and Learning (Monday, Public Holiday)	
25	09-Feb-26	Teaching and Learning	Teaching and Learning	
26	16-Feb-26	Teaching and Learning	Teaching and Learning	
27	23-Feb-26	Teaching and Learning	Teaching and Learning	
28	02-Mar-26	Study/Review	Study/Review	
29	09-Mar-26	Teaching and Learning	Teaching and Learning	
30	16-Mar-26	Teaching and Learning (Tuesday, Public Holiday)	Teaching and Learning (Tuesday, Public Holiday)	
31	23-Mar-26	Teaching and Learning	Teaching and Learning	
32	30-Mar-26	Teaching and Learning (Friday, Good Friday)	Teaching and Learning (Friday, Good Friday)	
33	06-Apr-26	Teaching and Learning (Monday, Easter Monday)	Teaching and Learning (Monday, Easter Monday)	
34	13-Apr-26	Revision	Revision	←Hilary Term ends Sunday 19 April 2026
35	20-Apr-26	Trinity Week (Monday, Trinity Monday) / Assessment**	Trinity Week (Monday, Trinity Monday) / Assessment**	←Trinity Term begins
36	27-Apr-26	Assessment**	Assessment**	
37	04-May-26	Marking/Results (Monday, Public Holiday)	Marking/Results (Monday, Public Holiday)	
38	11-May-26	Marking/Results	Marking/Results	
39	18-May-26	Marking/Results	Marking/Results	
40	25-May-26	Research	Research	←Trinity Term ends Sunday 31 May 2026/Semester 2 ends
41	01-Jun-26	Research (Monday, Public Holiday)	Research (Monday, Public Holiday)	
42	08-Jun-26	Research	Research	
43	15-Jun-26	Research	Research	
44	22-Jun-26	Research	Research	
45	29-Jun-26	Research	Research	
46	06-Jul-26	Research	Research	
47	13-Jul-26	Research	Research	
48	20-Jul-26	Research	Research	
49	27-Jul-26	Research	Research	
50	03-Aug-26	Research (Monday, Public Holiday)	Research (Monday, Public Holiday)	
51	10-Aug-26	Research	Research	
52	17-Aug-26	Research	Research	
53	24-Aug-26	Reassessment 2025/26 - Semesters 1 & 2	Reassessment 2025/26 - Semesters 1 & 2	

* Semester 1 assessment session: December 11 to 22, 2025 inclusive (No assessment after Dec 22nd)

** Semester 2 assessment session: April 21 to May 1, 2026 inclusive

*** Marking of Semester 1 assessments will continue into January and early February. Provisional Semester 1 results will be made available to students during the week commencing February 9, 2026

1.5 Timetable

Your timetable is available at **My TCD** (my.tcd.ie). Module coordinators may make you aware of modifications to the timetable for specific modules.

1.6 Internships

Internships or research experience placements are not provided as part of the course, or arranged by the course moderators or administrators. However, you may wish to gain experience in a research lab during the summer of your 3rd and 4th years of the degree. It is important to plan ahead if you wish to gain such experience, as most lecturers/Principal Investigators will decide which students, if any, they are willing to mentor between September and November of the previous year (i.e. during your first semester of JS Neuroscience). This is because there are a number of grants you and a supervisor can apply to in order to obtain funding to support you during your time in the lab. Typically, these stipends, which are not taxed, provide approximately 50-75 euro per day to the student, and are paid fortnightly over a period of a 2–3-month project. Due to the cost of living and renting accommodation in Dublin, some lecturers/Principal Investigators may refuse to take on a summer research student if there is no such stipend in place.

Obtaining such summer research experience, having experience writing a grant application and being awarded a research grant is an attractive addition to the CV of anyone who wishes to work in research after completing their degree. Some examples of such grants are:

The HRB Summer Student Scholarship:

https://www.hrb.ie/funding-scheme/summer-student-scholarships-ss-2025/

The deadline for applications is typically in December of the year prior to the summer when research will be performed.

The Wellcome Trust Summer Internship Programme (for work experience in a lab in London):

https://wellcome.org/jobs/summer-internship-programme

Other grants are available depending on the specific field of research and location of the lab work. If looking up such grants, make sure to check out the “Eligibility Criteria” to see if they are suitable.

As these grant applications can take several weeks to write and require input and support from a specific lecturer/Principal Investigator, make sure to contact the person you wish to supervise you at least 1 month, ideally 2-3 months, prior to the deadline of such grants.

Tips for how to look for and apply to research experience are provided on the Neuroscience Ireland website at: https://neuroscienceireland.com/research-experience

1.7 Study Abroad/Erasmus

To study abroad during the Neuroscience Moderatorship, you must apply during Senior Freshman year.

2. SCHOLARSHIPS AND PRIZES

2.1 Prizes, Medals and Other Scholarships

The Barbara Ryan Memorial Prize in Neuroscience was founded in 2009 by a donation from the Ryan family in memory of Barbara Ryan, who was one of the first members of staff of Trinity College Institute of Neuroscience. The prize is awarded annually, on the recommendation of the Director of the Neuroscience degree course, to the student who achieves the highest marks in the Junior Sophister year of the Moderatorship in Neuroscience. Value, €400.

3. ACADEMIC WRITING

3.1 Generative AI, Academic Integrity and Referencing Guide

Use of Generative AI (Gen AI):

The School of Biochemistry and Immunology's Policy on the Use of Gen AI states that use of Gen AI to aid in completion of assessments is not permitted, unless otherwise explicitly stated by the lecturer who delivers this assessment. Use of GenAI as part of assessed work, where such use is not explicitly permitted, is considered as plagiarism (see below).

Content which is confidential in Trinity, or confidential to your user's studies or work (research, teaching or administrative), or for which you do not own the copyright, or which is not publicly available, such as lecture slides, **should NOT be used in creating inputs, prompts, queries, instructions, contextual information, and other interactions for GenAI**. In most cases, to do so is **unlawful**. Even where sharing such information is not necessarily unlawful, it is **against College regulations**. Hence, confidential College information is NOT allowed to be uploaded into a third-party GenAI tool for any reason.

For more information see:

https://www.tcd.ie/academicpractice/resources/generative_ai/

https://www.tcd.ie/academicpractice/assets/pdf/college-statement-on-genai.pdf

Plagiarism:

Each student is responsible for ensuring that their work is actually the result of his/her own efforts, skills and knowledge and has not been produced by means that will give an unfair advantage over other students.

Plagiarism is considered as **academically fraudulent**, and an offence against University discipline. The University considers plagiarism to be a major offence, and subject to the disciplinary procedures of the University.

All students are expected to undertake the "Ready Steady Write" tutorial at: https://libguides.tcd.ie/academic-integrity/ready-steady-write to ensure you understand what constitutes plagiarism and the consequences of plagiarism. **It is the responsibility of the author**

of any work to ensure that <u>they do not commit plagiarism</u>. Such offences will not be overlooked based on claims that the student was not aware/was not made aware of what constitutes plagiarism.

The risk of inadvertent plagiarism is greater in Sophister years because of the increasing use of primary sources (research papers). It is therefore essential to develop good practice immediately.

Plagiarism is interpreted by the University as the act of presenting the work of others as one's own work, without acknowledgement.

Plagiarism can arise from deliberate actions and also through careless thinking and/or methodology. The offence lies not in the attitude or intention of the perpetrator, but in the action and in its consequences.

Plagiarism can arise from actions such as:

(a) copying another student's work.

(b) enlisting another person or persons to complete an assignment on the student's behalf.

(c) quoting directly, without acknowledgement, from books, articles or other sources, either in printed, recorded or electronic format.

(d) paraphrasing, without acknowledgement, the writings of other authors.

Examples (c) and (d) in particular can arise through careless thinking and/or methodology where students:

(i) fail to distinguish between their own ideas and those of others.

(ii) fail to take proper notes during preliminary research and therefore lose track of the sources from which the notes were drawn.

(iii) fail to distinguish between information which needs no acknowledgement because it is firmly in the public domain, and information which might be widely known, but which nevertheless requires some sort of acknowledgement.

(iv) come across a distinctive methodology or idea and fail to record its source.

All the above serve only as examples and are not exhaustive.

Students should submit work done in co-operation with other students, only when it is done with the full knowledge and permission of the lecturer concerned. Without this, work submitted which is the product of collusion with other students, may be considered to be plagiarism.

It is clearly understood that all members of the academic community use and build on the work of others. It is commonly accepted also, however, that we build on the work of others in an open and explicit manner, and with due acknowledgement. Many cases of plagiarism that arise could be avoided by following some simple guidelines:

(i) Any material used in a piece of work, of any form, that is not the original thought of the author, should be fully referenced in the work and attributed to its source. The material should either be quoted directly or paraphrased. Either way, an explicit citation of the work referred to should be provided, in the text, in a footnote, or both. Not to do so is to commit plagiarism.

(ii) When taking notes from any source it is very important to record the precise words or ideas that are being used and their precise sources.

(iii) While the Internet often offers a wider range of possibilities for researching particular themes, it also requires particular attention to be paid to the distinction between one's own work and the work of others. Particular care should be taken to keep track of the source of the electronic information obtained from the Internet, or other electronic sources and ensure that it is explicitly and correctly acknowledged.

If plagiarism is suspected, the Head of Department will arrange an informal meeting with the student, the student's tutor*, and the lecturer concerned, to put their suspicions to the student and give the student the opportunity to respond.

If the Head of Department forms the view that plagiarism has taken place, he/she must notify the Senior Lecturer in writing of the facts of the case and suggested remedies, who will then advise the Junior Dean. The Junior Dean will interview the student if the facts of the case are in dispute. Whether or not the facts of the case are in dispute, the Junior Dean may implement the procedures set out in Conduct and College Regulations

*As an alternative, students nominate a representative from the Students' Union to accompany them to the meeting.

Additional resources:

Calendar Part II, B: General Regulations & Information, 'Academic Integrity'

Statement of Principles on Integrity

Academic Integrity Policy (currently in development)

Library Guides - Academic Integrity

Coversheet Declaration

Referencing

The most important thing to remember when citing references is to be consistent. Depending on the module for which you are preparing the written piece, you may be required to use a specific referencing style. If you are unsure, ask the lecturer to set the assignment you are referencing. Below is a general guide to referencing different types of literature.

Referencing a book:

Name of author(s)/editor(s), give surname first followed by initial(s) as given on title page.

Year of publication, this should be placed in brackets.

Title of book this should be underlined or put in brackets.

Edition number, if not first edition.

Publisher

Place of publication.

The standard layout for citation is as follows:

Surname initials (date). Title: subtitle. Edition statement. Place of publication, publisher.

e.g. Leonard, B.E. (1997). Fundamentals of Psychopharmacology, 2nd Ed., pp 110-111, Wiley, Chichester.

Referencing a journal:

Example

Surname initials (date). Article title. Journal title, Volume (part), pages.

e.g. McNair, H. (1980): Basic considerations in HPLC. J. Chromatog. 8: 53-59.

Referencing authors

1. *Single author*

"Recent research (Jones, 1999) has demonstrated that…"

2. *Two authors*

(Connor and Leonard, 1998)

Connor, T.J. and Leonard, B.E. (1998) Depression, stress and immunological activation: the role of cytokines in depressive disorders. Life Sci. 62, 583-606.

3. *Multi-authorship (2 or more authors)*

(Yoo et al., 1995)

Yoo, S.D., Holladay, J.W., Fincher, T.K., and Dewey, M.J. (1995) Rapid microsample analysis of imipramine and desipramine by reversed phase high performance liquid chromatography with ultraviolet detection. J. Chromatog. 668, 338-342.

Dissertation or Thesis

It is necessary to provide details of the level of degree etc. and awarding institution in the full details.

e.g. (Dredge, 1998)

Dredge, K. (1998) A preclinical assessment of the effects of antidepressant drugs on the immune system. Ph.D Thesis, Dept. of Pharmacology, NUI, Galway.

4. TEACHING AND LEARNING

4.1 Programme Structure and Workload

Note: One ECTS credit typically corresponds to 25 to 30 hours of total student effort, including lectures, seminars, practical work, and self-directed learning and study. A full academic year is awarded 60 ECTS credits, equating to a total of 1,500-1,800 hours of student effort for the year.

Core modules	**Module Code**	**ECTS**	**Semester**
Research Skills	BIU33485	5	1
General Principles of Pharmacology	NSU33PH1	5	1
Neurophysiology	PGU33009	5	1
Neuroanatomy	ANU33001	5	2
Neurochemistry I	BIU33445	5	2
Integrative Neuroscience	BIU33465	5	2
Nucleic Acids & Molecular Biology Techniques	BIU33495	5	2
Genetic Analysis of the Nervous System	GEU33035	5	2
Open module scenario 1 (recommended)	**Module Code**	**ECTS**	**Semester**
Cell Physiology and Pharmacology	PGU33905	5	1
Biochemistry for Biosciences	BIU33150	5	1
Trinity Elective	TEU_____	5	1
Advances in Neurotherapy	PSU34830	5	2
Open module scenario 2	**Module Code**	**ECTS**	**Semester**
Cell Physiology and Pharmacology	PGU33905	5	1
Biochemistry for Biosciences	BIU33150	5	1
Genomes and Systems Biology	GEU33045	5	1
Trinity Elective	TEU_____	5	2
Open module scenario 3	**Module Code**	**ECTS**	**Semester**
Cell Physiology and Pharmacology	PGU33905	5	1
Biochemistry for Biosciences	BIU33150	5	1
Trinity Elective	TEU_____	5	1

Trinity Elective	TEU_____	5	2

4.2 Feedback from students

From time to time, you may be asked to evaluate parts of the course. Your comments on all aspects of the Neuroscience program, both positive and negative, **are extremely valuable and will be treated in confidence**. Student feedback is extremely important, particularly in the early years of a new course, as it provides a means for us to assess the course and will enable us to improve aspects of the course in the coming years.

4.3 Module Descriptors & Compulsory Reading Lists

BIU33485: RESEARCH SKILLS

Module coordinator: Dr Eva Jimenez-Mateos (4 Lectures, 2 Workshop, 4 Tutorials)

MODULE DESCRIPTION

The first part of the module (**data handling, statistics and experimental design**) gives an introduction to experimental design, data handling and statistical analysis of data, data interpretation and presentation. In block I and II, students will use computer software (a) to perform a range of commonly used statistical tests, (b) to graphically represent data and (c) to apply what they have learnt in problem-solving exercises. In block III, Journal Club is designed to provide students with an opportunity to read individual scientific articles and to develop the necessary skills to critically evaluate them.

MODULE DETAILS

Block 1

Lecture 1- Introduction to data representation and Interpretation. Dr Jimenez-Mateos.

Lecture 2- Data representation and Interpretation. Dr Jimenez-Mateos.

3 hours session on Computer lab (PAC room)

Block 2

Lecture 4- Quantitative and computational Neurosciences (MATLAB) – Dr Lara McManus

Lecture 5- Quantitative and computational Neurosciences (MATLAB) - Dr Nasseroleslami

Workshop- Quantitative and computational Neuroscience.

Block 3

Tutorial 1- Journal Club (2-3hr)- Dr Julia O'Sullivan

Tutorial 2- Journal Club (2-3hr)- Dr Jimenez-Mateos

Tutorial 3- Journal Club (2-3hr)- Dr Jimenez-Mateos

Tutorial 4- Journal Club (2-3h) – Dr Jimenez Mateos

Tutorial 5- Journal Club (2-3hr)- Oral presentation (10%)- Dr Jimenez-Mateos

Reading/Learning Resources:

Primer of Biostatistics. 5th Ed. by S.A. Glantz. McGraw-Hill. ISBN 0-07-024268-2, 1997

Biomedical Research: How to plan, publish and present it. 2nd Ed. by W.F. Whimster. Springer-Verlag Berlin and Heidelberg GmbH & Co. KG. ISBN 3540198768, 1997.

Medical Statistics at a Glance. by A. Petrie and C. Sabin. Blackwell Science, Oxford. ISBN 0632050756, 2000.

Learning outcomes:

On successful completion of this module students will be able to:

- critically read and interpret scientific journal papers.
- critically assess experimental design and interpretation of data.
- evaluate statistical methods.
- present scientific data via PowerPoint to a scientific audience.

Assessment:

All assessment for this module is in-course. **Block I** – MCQ, 30%. **Block II** – ICA, 20%. **Block III** Oral presentation, 10%. Written exam critical analysis of scientific text, 40% (Take home exam, 24hr)

NSU33PH1: GENERAL PRINCIPLES OF PHARMACOLOGY

Module coordinator: Prof. Andrew Harkin

Module content: 26 Lectures; 5 Practicals; 1 revision class

4.3.1.1.1 MODULE DESCRIPTION

Targets of drug action; receptor pharmacology and cell signalling; pharmacodynamics (drug action, agonism and antagonism; specificity and side-effects); Dose-response; basic pharmacokinetics (drug absorption, distribution, metabolism and excretion); general ANS pharmacology - sympathetic and para-sympathetic nervous transmission; cholinergic drugs, anticholinesterases; direct and indirect acting sympathomimetics; non-adrenergic and non-cholinergic transmitters; neuromuscular transmission and neuromuscular blocking agents; central neurotransmission and the biochemical basis of neuropharmacology; excitatory and inhibitory transmitters; neuromodulatory transmitters: biogenic amines and acetylcholine; application of basic principles in selected examples of drug use; overview of drug development and testing. ***Practical classes include***: 1 Drug targets and receptor transduction - computer simulated programme with assignment, 2. Dose response in the Guinea Pig Ileum preparation: agonists - computer simulated experiments and data analysis with assignment , 3. Water Maze – computer simulated programme with data analysis and assignment, 4. Basic Pharmacokinetics, computer simulated programme with data analysis and assignment, 5. Drug development and testing – clinical trials; computer simulated programme with assignment.

LEARNING OUTCOMES

On completion of this course the student will be able to:

- state the variety of targets to which drugs bind in the body and illustrate their transduction and cell signalling mechanisms.
- define agonist (full, partial and inverse), antagonist (competitive and non-competitive) and recall selected examples of each.
- describe receptor binding experiments and define the receptor binding parameters B_{MAX} and K_D.
- to construct dose response curves and calculate drug potency of both agonists and antagonists.
- to illustrate the principles of drug absorption, distribution, metabolism and excretion and define the terms, pKa, bioavailability, volume of distribution, clearance, half-life and Kel.
- to illustrate the organisation and mode of neurotransmission within the sympathetic, para sympathetic, enteric and somatic nervous systems.

- to recall the mechanisms of action and clinical uses of cholinergic and adrenergic drugs within the peripheral nervous system.
- to define the key steps associated with excitatory and inhibitory neurotransmission in the brain and provide selected examples of drugs which influence these steps.
- to report on the various stages of drug discovery, development and the clinical trials process.

ASSESSMENT: Examination (60%) & in-course assessment (40%).

Reading/Learning Resources:

Rang & Dale's Pharmacology (10th Ed.) James M. Ritter, Rod J. Flower, Graeme Henderson, Yoon Kong Loke, David MacEwan, Emma Robinson, James Fullerton Elsevier (2024)

Brody's Human Pharmacology. Mechanism-Based Therapeutics (6th Ed.) by Lynn Wecker Elsevier (2018)

The Biochemical Basis of Neuropharmacology. (8th Ed) by J.R. Cooper, F.E. Bloom and R.H. Roth. (2003) Oxford University Press. ISBN 0-19-514008-7.

PGU33009: NEUROPHYSIOLOGY I

Module coordinator: Dr Eva Jimenez-Mateos (23 lectures; 4 Practicals)

MODULE DESCRIPTION

The lectures in this module focus on how the nervous system works. Lectures will describe the structure and function of neurons, how they communicate and how they are arranged to form the nervous system. Topics include electrical properties of neurons, properties and physiological functions of ion channels, synaptic excitability, transmission and plasticity and the delivery and interpretation of sensory information into the central nervous system. Part of the course is also devoted to describing methods to record both cellular and brain activity. Practical classes focus on computer-simulated recordings of individual nerves to understand features of neuronal activity, recording brain function via electroencephalogram and sensory-evoked potentials. This module is designed to provide understanding of how the brain functions at a cellular and systems level.

DETAILS OF THE MODULE

Module contents are under revision and will be provided in the next iteration of the handbook

LEARNING OUTCOMES

On completion of this module, the student will be able to:

- describe the neurophysiological activity of peripheral and central neurons involved in sensory information processing.
- define the physiological roles of the brain regions and pathways involved in the planning, initiation and control of movement.
- identify the brain activity patterns associated with distinct sleep states and describe the neurophysiological basis of sleep and wakefulness.
- relate cellular and synaptic neuronal activity to the coordinated brain oscillations recorded by electroencephalography (EEG).
- interpret neurophysiological activity recorded using in vitro and in vivo electrophysiological techniques and recognise the clinical uses of neurophysiological recordings including EEG and sensory-evoked potentials.
- relate how synaptic plasticity at cellular and network levels underlies long-term alterations in behaviour associated with learning and memory, addiction.

ASSESSMENT: Laboratory reports & in-class test (30%) and Examination (70%).

BIU33465: INTEGRATIVE NEUROSCIENCE

Module coordinator: Dr Tomás Ryan (15 lectures and 5 tutorials)

MODULE DESCRIPTION

The intention of this course is firstly to provide students with a firm grounding in the sub-fields of neuroscience that are conventionally referred to as systems neuroscience, cognitive neuroscience, and behavioural neuroscience; and secondly to introduce students to integrative frameworks for synthesizing existing neuroscience literature from different fields and for orientating to hypothesis driven and explanatory research. Students will learn how to approach any brain function (e.g. learning and memory) from a functional and evolutionary standpoint and will apply heuristic conceptual and computational approaches for developing frameworks within which hypotheses can be developed. They will learn how such hypotheses can be tested through multi-disciplinary research projects that combine behavioural, cognitive, physiological, and molecular investigations of brain function using cutting edge experimental methods. They will learn how to assess the validity and quality of such research with the utmost scepticism. They will learn how outcomes of progressive experimental investigations can develop and refine theories that aim to explain the brain and behaviour. This Junior Sophister module is designed to be comprehensive, in order to provide all students with a firm and holistic platform that can be applied to students' interpretation of other courses and/or of their own independent reading and research.

LEARNING OUTCOMES

- understand the historical origins of the scientific study of behaviour in ethology and experimental psychology.
- appreciate different cognitive and computational frameworks in which to explain behaviour.
- develop a working knowledge of neural circuit organization and function.
- understand the methodology and interpretation of data from widely used technology and methods of modern neuroscience research.
- understand core concepts and current topics in the neuroscience of movement.
- understand core concepts and current topics in the neuroscience of perception.
- understand core concepts and current topics in the neuroscience of emotion and motivation.
- understand core concepts and current topics in the neuroscience of learning and memory.
- understand core concepts and current topics in the neuroscience of decision making.

- understand core concepts and current topics in the neuroscience of organismic homeostasis.
- appreciate different empirical approaches to the neuroscience of consciousness.
- appreciate the role of evolutionary biology in explaining neuroscience and behaviour and have knowledge of evolutionary neuroscience and psychology.

At the end of the problem-based learning element of the course the student will:

- have developed a theory-orientated perspective for understanding cognitive and behavioural functions at multiple levels.
- be able to critically assess and integrate multiple sources from different fields and develop and synthetic framework for describing current knowledge of any neuroscience topic.
- be able to identify and articulate novel scientific questions at the frontier of systems, cognitive, and behavioural neuroscience.
- have demonstrated the ability to community the above outcomes through an extensive written essay.
- have demonstrated the ability to community the above outcomes through oral presentations.
- have demonstrated the ability to work in a team.

Assessment: All assessment of this module is in-course. In-course assessment comprises of oral presentation following group work, essay, and examination.

ANU33001: NEUROANATOMY

Module coordinator: Prof Denis Barry

Module contents: 8 Lectures; 1 Lab. introduction; 7 practical sessions

Learning outcomes: Neuroanatomy is the anatomic study of the CNS and PNS, with emphasis on pathways and nuclei associated with sensory input integration and motor output. This module will combine theoretical learning with cadaveric brain inspection and on successful completion you will be expected to:

- recognize and describe the major subdivisions and anatomic features of the central nervous system (CNS), including the cerebral hemispheres, brainstem, cerebellum, and spinal cord.
- describe the ventricular system and the production, circulation, absorption, and function of the cerebrospinal fluid.
- name the major vessels visible and outline the blood supply of the CNS.
- identify CNS structures associated with major sensory and motor systems, their connections, and outline their pathways outside the CNS.
- locate and functionally describe the nuclei and pathways associated with the special senses.
- name and classify the cranial nerves and list their major connections.
- list the deeper cortical nuclei associated with the limbic system and basal ganglia and their function where known.
- apply anatomical knowledge to explain the normal function of CNS regions in activities of daily life.
- use anatomical knowledge to explain the pathogenesis and natural history of common clinical disorders of the CNS.

Assessment: Examination (50% multiple choice questions) AND Practical Examination, comprising 40%, end of module, and 10%, in course continuous assessment, (after practical 3) (totally 50%).

Please note that the neuroanatomy practical examination is usually held outside of Hilary term prior to the annual examination period.

Reading/Learning Resources:

Clinical Neuroanatomy and related Neuroscience: FitzGerald and Folan-Curran: W B Saunders

Very detailed and integrates neuroanatomy, neurophysiology, neuropharmacology and clinical considerations.

Grays anatomy for students. Drake, Vogel, Mitchel.

Excellent textbook with detailed schematic and clear explanatory text.

Blackboard: This contains all announcements relating to curricular content, explanatory videos, sample questions, lectures slides and practical manuals and the Wiegert's presentation.

BIU33495: NUCLEIC ACIDS & MOLECULAR BIOLOGY TECHNIQUES

Module coordinator: Daniela Zisterer

Module content: 18 Lectures and 5 practicals

This module covers the structure and function of nucleic acids in a eukaryotic context. The basis of gene transcriptional regulation and mRNA translation are described at a mechanistic and structural level in addition to the processes involved in DNA replication and repair. The lectures of this module (17h) are accompanied by a set of practical sessions (15 contact hours) that include (i) pKA and preparation of buffers and (ii) analysis of plasmid DNA, digestion and cloning, transformation and selection of bacteria; laboratory and tutorial sessions.

Learning Outcomes:

On completion of this module, the student will be able to:

- Recall and integrate key knowledge and concepts about DNA structure, function and process and assess the importance of DNA replication.
- Describe the molecular and structural features of transcription initiation, transfer RNA charging and ribosomal translation.
- Recall and integrate key knowledge and concepts about how gene expression is regulated and demonstrate an understanding of the processes and importance of transcription and translation.
- Relate the theory behind techniques used in recombinant DNA technology and evaluate how these techniques can be applied to biological problems.
- Understand the different types of DNA damage, how they occur and implications for genome stability.
- Exhibit knowledge of the signal transduction pathways that sense DNA damage and the different repair pathways that exist to deal with the range of types of DNA damage.

Recommended Reading List:

A reading list will be given out by lecturers during the module.

Assessment Details:

80% End of year examination, 20% in-course assessed.

In course assessment: Pre- and post-practical homework assignments (20% of course)

BIU33445: NEUROCHEMISTRY I

Module coordinator: Prof. Gavin Davey

Module contents: 12 Lectures; 6 practical sessions

This module focuses on chemical transmission between neurons, how neurotransmitters are classified and identified and describes typical and atypical neurotransmitters and their functions in the brain. Practical classes are devoted to the following topics: subcellular fractionation of brain tissue, assessment of protein expression in brain tissue, assessment of enzyme markers, measurement of neurotransmitters, analysis of brain lipids, neurotransmitter receptor binding.

Learning Outcomes:

On completion of this module, the student will be able to:

- Describe the cell types in the brain and common techniques that enable chemicals with neurotransmitter-like properties to be identified.
- Understand the criteria that need to be satisfied in order for a chemical to be classified as a neurotransmitter.
- Develop a knowledge of the biogenic amines (acetylcholine, dopamine, noradrenaline, adrenaline, serotonin) and the properties that allow them to be classified as neurotransmitters.
- Develop a knowledge of glutamate and GABA and the properties that allow them to be classified as neurotransmitters.
- Develop a knowledge of atypical neurotransmitters (NO, CO, D-serine, neuropeptides, purines) and the properties that allow them to be classified as neurotransmitters.
- Develop a knowledge of how dysfunctional neurotransmitter systems give rise to common brain disorders.
- Set up and manage standard laboratory equipment correctly, safely and in the appropriate context.
- Outline the theory behind the techniques used in practical classes.
- Construct a clear scientific record of experiments and the data generated in experiments in a laboratory notebook and critically assess the data.
- Explain the importance of experimental controls and multiple determinations.
- Work independently and in a team and exercise initiative and personal responsibility..
- Participate in group discussions with peers and with teachers. Select and apply appropriate statistical tests to their own experimental data and evaluate the results of these tests.

Recommended Reading List:

- Basic Neurochemistry (Siegal, Albers, Brady, Price) Academic Press, 7th Edition. (6th Edition is online free at https://www.ncbi.nlm.nih.gov/books/NBK20385/?term=basic%20neurochemistry)
- Principles of Neural Science by Eric Kandel , James Schwartz , Thomas Jessell , Steven Siegelbaum , A.J. Hudspeth

Assessment Details: Lab Assessment: 20%; Examination (80%).

GEU33035: GENETIC ANALYSIS OF THE NERVOUS SYSTEM

Module coordinator: Dr Juan Pablo Labrador

Module contents: 19 Lectures; 3 tutorials

MODULE DESCRIPTOR

The module is focused on understanding how experimental genetics are used to manipulate genes in organisms to address problems in biology. Areas covered are 1) Experimental Genetics: structure and conservation of genes, nature of mutations and their effects on protein structure and function, model organisms in genetic research and experimental manipulation of animal genomes. 2) Developmental Neurogenetics: the purpose and design of genetic screens, genetic analysis of neurogenesis and genetic analysis of axon guidance 3). Behavioural Genetics: cell organization and methods of cell biology, cell biology of neurons and synapses, creation and use of molecular reporters of specific gene or cell activity, methods to study nervous systems, sensory circuits, sensation; transduction; perception; coding; behaviour, learning and memory, sleep and circadian rhythms.

Learning Outcomes

Upon successful completion of this module, students will be able to understand and describe how model organisms are used in genetic research and common technologies and methods employed to genetically modify organisms. Students should also understand the basis of genetic screens and mapping. They will be able to explain epistasis through the analysis of different genetic interactions in neurogenesis and axon guidance. Students will become familiar with the cell biology of neurons and synapse as well as methods to probe synaptic activity. Students will also learn about circuitry underlying perception.

Recommended Reading List: Anthony J.F. Griffiths; Susan R. Wessler; Sean B. Carroll; John Doebley. Introduction To Genetic Analysis. New York, NY :W.H. Freeman & Company, 2015

Assessment Details: Final exam/or assignment

Open Modules

The below open modules are those which may be chosen (as outlined on page 4, under "Course Structure") to fulfil the required credits of the JS Neuroscience Year. Most of these modules are delivered to a number of different moderatorships within the Biological and Biomedical Sciences course, and therefore it is often not possible to schedule lectures at a time when all students are available to attend in person. As a result, lectures often need to be provided as online recordings. The module coordinator will outline if/when this is the case at the beginning of the module.

There is one open module that is only available to Neuroscience students (see Advances in Neurotherapy, below). Although it is an open module, it is strongly recommended that Neuroscience students take this module since it provides a human neuropsychology perspective on behaviour that is not available elsewhere in the moderatorship.

PGU33905: CELL PHYSIOLOGY AND PHARMACOLOGY I

Module coordinator: Dr Kate Connor

Contact Hours: 25

The lectures in this module focus on (i) membrane structure, proteins and properties; (ii) receptors and neurotransmitters. The module is designed to consider the structure of the membrane, the changes that occur in the membrane under different biological circumstances using age as an example, and role of membrane proteins. Cell functions, for example, the control of intracellular calcium by cells and transmitter release will be considered in the context of the membrane proteins that impact on these functions. In addition, this module is designed to give students an appreciation of how drugs interact in biological systems and how they may be utilised as therapeutic agents. Various topics will be covered, including: (i) the principles of drug action and drug development; (ii) the effects of drugs on: (iii) chemical transmission and the autonomic and central nervous system, (iv) the cardiovascular and immune system. Drug targets in neuropharmacology will be also be discussed. Students will participate in a group presentation on a related topic and will complete an individual report on this topic.

Note that the in-person lectures of this module are not listed in Neuroscience students' my.tcd.ie calendar, due to unavoidable clashes with core modules. However, the module coordinator will

provide the schedule of in person lectures during the first lecture and students are encouraged to attend lectures in person where possible. Where not possible, students need to view online recordings of the lectures, which will be released for 48 hours before being removed.

Learning Outcomes:

- Appreciate the role lipids play in the composition and function of plasma membranes.

- Be aware of the role that fatty acids and lipids in cell function, and the impact of ageing on membrane lipids and consequently on cell function.

- Be in a position to describe how accumulation of reactive oxygen species impacts on membrane lipids and to appreciate how these changes contribute to diseases.

- Appreciate the importance of controlling intracellular calcium concentration.

- Be able to characterize the steps leading to transmitter release.

- Be in a position to describe the techniques used to analyse lipids, intracellular calcium concentration and neurotransmitter release.

- Demonstrate an understanding of the physiology and associated pathophysiology of the key systems discussed.

- Explain key measurements used to understand the pharmacokinetic and pharmacodynamic properties of a drug.

- Describe how drugs produce their therapeutic and side effects on the body.

- Describe the neurotransmitter systems and neural networks involved in autonomic nervous system and how they can be targeted to treat given ailments, including explaining the mechanism(s) of action of selected drugs (giving examples) and their indications and contraindications.

- Be able to explain control of normal heart rate, rhythm and force of contraction and explain how systems which regulate these functions can be targeted to treat given ailments, including explaining the mechanism(s) of action of selected drugs (giving examples) and their indications and contraindications.

- Be able to explain examples of known/hypothesised mechanisms which are disrupted in neurodegenerative diseases, and how they can be targeted to treat these diseases, including explaining the mechanism(s) of action of selected drugs (giving examples) and their indications and contraindications.

Recommended Reading List:

Alberts, Bruce, Alexander Johnson, Julian Lewis, Martin Raff, Keith Roberts, and Peter Walter. Molecular Biology of the Cell. 5th Edition. New York: Garland Science. ISBN 978-0-8153-4111-6

Rang and Dale's Pharmacology, Elsevier, ISBN: 9780702053634. − Medical Pharmacology at a Glance, 8th Edition, Michael J. Neal, John Wiley & Sons, ISBN: 9781118902400

Assessment Details:

The module is assessed by a combination of an in course MCQ exam (30% of overall grade), following the initial cell physiology portion of the module, followed by an end of term exam (70% of overall grade), which involves answering one question of a choice of two, on cell physiology, and one question, of a choice of two, on pharmacology.

BIU33150: BIOCHEMISTRY FOR BIOSCIENCES

Semester taught - Semester 1

Contact Hours - 20 hours

Module Coordinator - Derek Nolan

The 20 lectures are pre-recorded and are available in Blackboard. Plus, two in person tutorials. For timetabling purposes these are scheduled in Weeks: 4-9, 11-14 Monday & Wednesdays from 19:00-20:00.

Learning Aims

This module follows on from the biochemistry/cell biology component of the "Molecules to Cells" BIU22201 module of year 2. The aim is to provide Junior Sophister students of other disciplines with the grounding in biochemistry necessary to (i) understand biology at a molecular level, (ii) form a mechanistic view of biological processes and (iii) appreciate the pathobiochemical basis of disease. The module covers four major themes in biochemistry: Proteins and Nucleic Acids, Membranes, Cytoskeleton and Signalling. The module will be assessed through a combination of in course assessment and an individual end of term exam.

Learning Outcomes

On completion of this module, the student will be able to:

- Recall and comprehend key knowledge and concepts of the hierarchy of polypeptide structure and the forces that stabilize the three-dimensional shape of proteins.
- Explain the link between a protein structure and its biological activity, and with appropriate examples, how human diseases arise from a deviation in structure.
- Appreciate the principles of spectrophotometry and its applications to biomolecules.
- Understand the concept of the proteome and its importance in disease Integrate key concepts about nucleic acid structure and function.
- Demonstrate an understanding of the biochemical processes of nucleic acids in the cell Recall and integrate key knowledge and concepts concerning the role of lipids in membrane structure and function.
- Describe how model membranes are formed and their applications.

- Describe how an understanding of membrane composition and structure can be used in the design of vaccines, antibiotics and beta-blockers.
- Demonstrate a knowledge of the biosynthesis of membrane proteins, including the mechanisms of insertion and transport to their various locations.
- Explain the types of membrane transport and how this process is coupled to energy and assayed.
- Describe the structure of microtubules, their assembly and disassembly and their polarity.
- Describe the structure of microtubule motors and the processes of directed vesicle transport and cytoplasmic streaming. Describe the structure of monomeric actin and how it is assembled into filaments Explain how actin nucleation is linked to pathological states.
- Describe the general principles of G-protein coupled receptor (GPCR) signalling and its regulation, the initial discovery of G-proteins linked to cyclase, the functional effects of cAMP and the activation of GPCR-linked signal-activated phospholipases.
- Discuss Receptor Tyrosine Kinase (RTK) signalling and details of MAP kinase cascades, using PDGF and EGF as examples. Explain RTK and PI3K pathways in the context of PKB (Akt) and PDK1 signalling.
- Describe the principles of steroid hormone receptor signalling mechanisms.

Assessment

60% end of year examination, 40% continuous assessment

In course assessment: Two online MCQ assessments.

The MCQs will be structured as follows:

There will be two MCQs per lecture, giving 40 MCQs for the course.

The first MCQ will be after reading week and will cover the first 12 lectures (so 24 MCQs) representing 24% of the marks for the module.

The second MCQ will be in week 12, i.e. the last week of the term and will cover the material contained in the eight lectures after reading week. There will be 16 MCQ representing 16% of the marks for the course.

Complete details of the assessments, MCQs and end of term exam, will be posted separately on BB in BIU33150.

Sample MCQs and a sample paper will be available online.

PSU34830: ADVANCES IN NEUROTHERAPY

Information provided by The School of Psychology

GEU33045: GENOMICS AND SYSTEMS BIOLOGY

Semester taught 1

Contact Hours 24

Module Personnel Mike Dolan, Adrian Bracken, Carsten Kröger, Kenneth Mok

Learning Aims The aim of this module is to equip students with a comprehensive understanding of the methods used in the fields of genomics, proteomics and metabolomics and how these methods are used for basic research, biotechnology, agriculture and medicine. To this end, several applications from work in diverse organisms (bacteria, fungi, plants, animals including humans), in addition to specific diseases and disorders (Schizophrenia and Cancer), will be presented. The module further introduces students to the field of systems biology and outlines how systems biology differs from the classic reductionist approach used in biology.

Module content:

Lecture Topic & Lecturer
Introduction to Genomics and Systems Biology (Dolan)
History of DNA Sequencing I (Dolan)
History of DNA Sequencing II: The Human Genome Project (Dolan)
Modern Day DNA sequencing I: 2nd Generation Sequencing Technologies (Dolan)
Modern Day DNA sequencing II: 3rd Generation Sequencing Technologies (Dolan)
Structural and Comparative Genomics (Dolan)
Genomic Architecture of Schizophrenia (Dolan)
Transcriptomics: Revealing Gene Expression (Dolan)
Profiling RNA expression in the Schizophrenic Brain (Dolan)

Regulation of Gene Expression (Dolan)
Single-cell and spatial Transcriptomics (Dolan)
Single-cell dissection of the human brain in health and disease (Dolan)
Revision of material, discussion and answering student questions (Dolan) - tutorial
Study/Review week
Bacterial genomes and comparative genomics (Kröger)
Functional genomics in bacteria (Kröger)
Introduction into the epigenome: histone and DNA modifications (Bracken)
Methods to analyse the epigenome; the ENCODE project (Bracken)
Cancer profiling and classification of tumour types (Bracken)
Using genomic information for the development of cancer therapies (Bracken)
Proteomics: Identify/characterise/quantify; Mass Spec and other technologies (Mok)
Quantitative proteomics; clinical proteomics (Mok)
Interaction/affinity proteomics; metabolomics introduction (Mok)
Metabolomics technologies (Mok)
Revision of material, discussion and answering student questions (all lecturing)
Revision Week
Assessment Week

Learning Outcomes: Upon successful completion of this module, students will be able to describe experimental approaches used in the fields of genomics, proteomics and metabolomics. They will understand how to leverage these methods to analyze complex biological systems and questions. Students will be able to evaluate the applications of these techniques in biological sciences and discuss case studies involving specific diseases and disorders. Finally, they will be able to differentiate between systems biology and traditional reductionist approaches in biology.

Assessment Details: One 1.5-hour exam paper at the end of semester 1

Module Coordinator Mike Dolan MJDOLAN@tcd.ie

ELECTIVES

It is part of College's education strategy that all students should be given the opportunity to experience knowledge and ideas outside their main subject area as Group III courses. Elective courses consist of 5 ECT credits spread over Semester 1 or 2. Details of the Elective courses, including timetables can be found at https://www.tcd.ie/trinity-electives/electives/

Uniquely, Neuroscience students have the option to choose just one (as opposed to two) Trinity Elective since they also are offered an open module in Psychology, which is not available to any other moderatorship within TR060. Students may choose to take 1 elective in each semester, but we do recommend the Psychology module that is offered in semester 2, in lieu of a second elective.

Elective courses are assessed as Group III courses, i.e. they count towards the overall JS mark.

Reference/Source:

Student Learning Development

Accessible Information Policy

4.4 Examinations: Marking, Absences, Timetables

Courses are assessed by in-course assessment and/or by examination. Your grade at the end of the Junior Sophister year is compiled from the results of annual examinations and continuous assessment marks for the year. Ten marks are allocated per ECTS credit, towards the possible 600 marks for Junior Sophister year. Please note that, as per College Calendar, **student attendance at all examinations is mandatory**. Should a student miss an exam (without medical cert or appropriate supporting documentation submitted to College Tutor and Student Cases), they will be returned as '*ABSENT NO PERMISSION*' which results in automatic exclusion from college. Please see https://www.tcd.ie/Senior_Tutor/faq/ for further information regarding college regulations.

Please note that examination timetables are compiled by Academic Registry/Exams Office and all examination information is made available to students via **my.tcd.ie**. Course advisors and administrative staff **cannot** provide details of examination dates and venues.

In-Course Assessment

The nature of the assessments will vary from one course to another. Individual members of teaching staff will give more details of assessment procedures at the beginning of each module. Students are encouraged to develop their word-processing skills and computer skills in general in the Junior Sophister year.

Submission deadlines

For each item of course work there will be a submission deadline. Meeting deadlines is regarded as an important part of the course and are valued by employers. Apart from maintaining equity between students, deadlines enable students to demonstrate their ability to schedule their work properly. Students are expected to meet all deadlines. **A case for special circumstances may be made via the College Tutor. Extension of deadlines will only be given in exceptional circumstances.**

Word limitations

All course assessments must comply with the stated word limit (+ 10%). Students are required to write the number of words at the end of the assessment. Students may exceed the word limit only by 10% e.g. if the word limit is 2,500 words, a word count of 2,750 will be accepted.

College guidelines on examination regulations and progression:

Calendar Part II, B: General Regulations and Information, 'Absence'

Academic Policies

Calendar Part II, B: General Regulations & Information

Calendar Part II, C: Specific Regulations

Class Descriptors: These Science Faculty Descriptors are given as a guide to the qualities that assessors are seeking in relation to the grades usually awarded. A grade is the anticipated degree class based on consistent performance at the level indicated by an individual answer. In addition to the criteria, listed the Department's examiners will also give credit for evidence of critical discussion of facts or evidence.

Guidelines on Grades for Sophisters' Essays and Examination Answers

Class	Range	Criteria
I	90-100	IDEAL ANSWER; showing insight and originality and wide knowledge. Logical, accurate and concise presentation. Evidence of reading and thought beyond course content. Contains particularly apt examples. Links materials from lectures, practicals and seminars where appropriate.
	80-89	OUTSTANDING ANSWER; falls short of the 'ideal' answer either on aspects of presentation or on evidence of reading and thought beyond the course. Examples, layout and details are all sound.
	70-79	MAINLY OUTSTANDING ANSWER; falls short on presentation and reading or thought beyond the course, but retains insight and originality typical of first class work.
II-1	65-69	VERY COMPREHENSIVE ANSWER; good understanding of concepts supported by broad knowledge of subject. Notable for synthesis of information rather than originality. Sometimes with evidence of outside reading. Mostly accurate and logical with appropriate examples. Occasionally a lapse in detail.
	60-64	LESS COMPREHENSIVE ANSWER; mostly confined to good recall of coursework. Some synthesis of information or ideas. Accurate and logical within a limited scope. Some lapses in detail tolerated.
II-2	55-59	SOUND BUT INCOMPLETE ANSWER; based on coursework alone but suffers from a significant omission, error or misunderstanding. Usually lacks synthesis of information or ideas. Mainly logical and accurate within its limited scope and with lapses in detail.
	50-54	INCOMPLETE ANSWER; suffers from significant omissions, errors and misunderstandings, but still with understanding of main concepts and showing sound knowledge. Several lapses in detail.
III	45-49	WEAK ANSWER; limited understanding and knowledge of subject. Serious omissions, errors and misunderstandings, so that answer is no more than adequate.
	40-44	VERY WEAK ANSWER; a poor answer, lacking substance but giving some relevant information. Information given may not be in context or well explained, but will contain passages and words which indicate a marginally adequate understanding.
F-1	35-39	MARGINAL FAIL; inadequate answer, with no substance or understanding, but with a vague knowledge relevant to the question.
F-2	30-34	CLEAR FAILURE; some attempt made to write something relevant to the question. Errors serious but not absurd. Could also be a sound answer to the misinterpretation of a question.
F-3	0-29	UTTER FAILURE; with little hint of knowledge. Errors serious and absurd. Could also be a trivial response to the misinterpretation of a question.

Reference/Source:

Calendar II, Part B: General Regulations and Information

4.5 Attendance Requirements

Students who fail to attend more than 30% of module teaching hours may be excluded from undertaking module examinations. See the College's Academic Calendar, Part II, for more information about non-satisfactory attendance.

Calendar Part II, B: General Regulations and Information, 'Attendance'