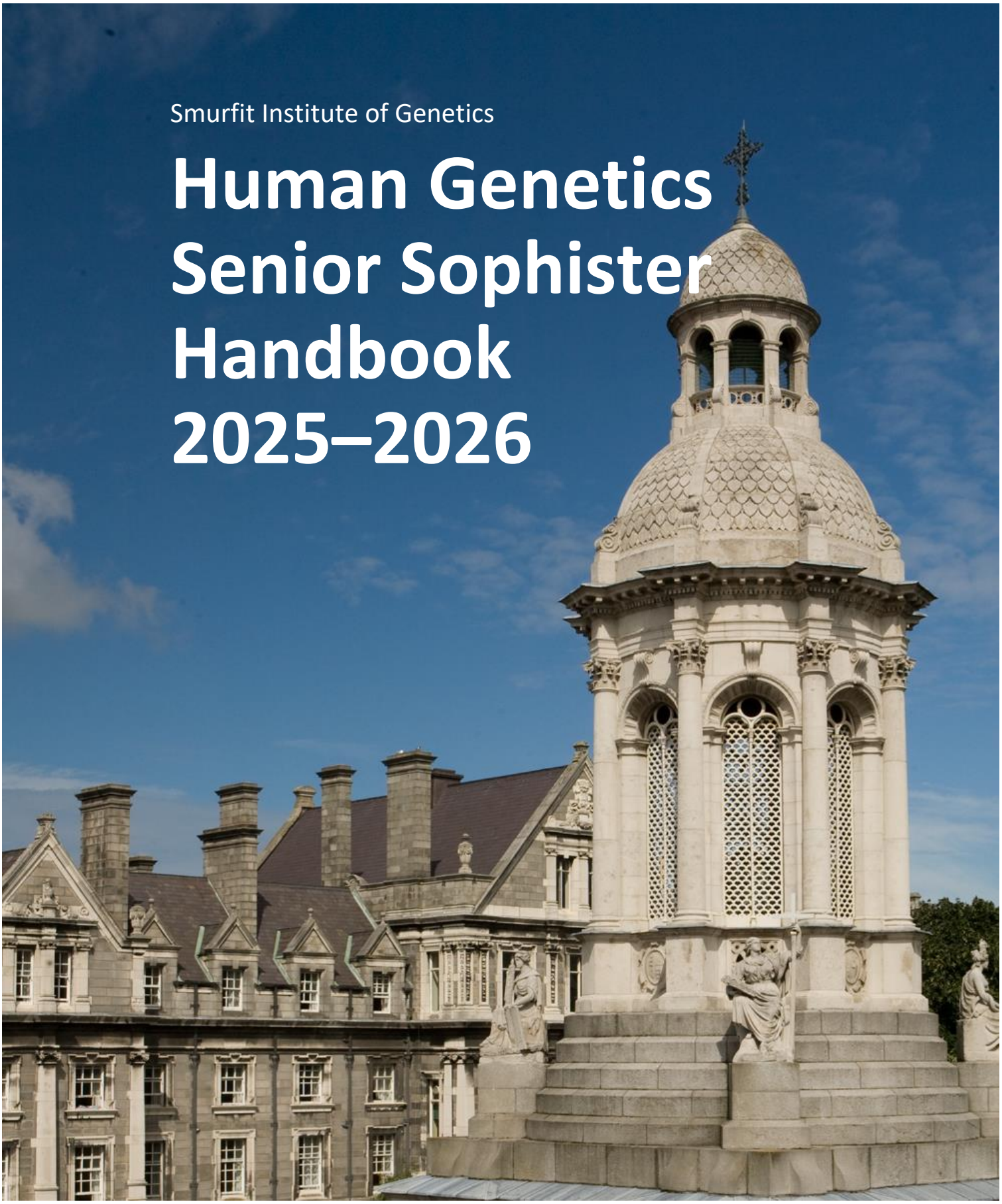
Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



Smurfit Institute of Genetics

Human Genetics Senior Sophister Handbook 2025–2026

Contents

1. Introduction

It is a pleasure for me to welcome you to your Senior Sophister year in Genetics. As you know, our Department is relatively young (established in 1958) considering the age of the university. Nevertheless, in its short history it has been responsible for big discoveries in the field of Genetics. Our graduates have gone on to positions of great influence over the world and we look forward to seeing where this degree will take you when you finish in May 2026.

Our philosophy has a strong focus on the individual and in developing your analytical as well as technical skills. It will be important for you to learn a range of subjects but also to think critically and be able to apply your knowledge to problems. We also believe that communication skills are an essential part of your education and you will develop these skills through a literature review as well as a capstone project. These projects continuously prove to be really rewarding for students. It will also give you an opportunity to work side by side with our amazing scientists (PhD students and postdocs).

While the year ahead will be incredibly busy, please remember to make time for yourself and to continue in your extra-curricular activities, be they sporting or otherwise. Make sure you set realistic goals and aspirations and please reach out to the lecturing staff if you have any issues during the year, we're here to support you. Your success this year is also our success!

Finally, I would also like to make you aware that College offers to you a wide range of support services (personal, financial, career and academic). All this information is available on the College webpage. However, your personal tutor will be able to guide you should you require any such support.

I wish you the best of luck in your final year and will look forward to seeing you all about the department in the year ahead.

Best wishes,

Prof Matthew Campbell, Head of Genetics.

YOU ARE ADVISED TO READ THE FOLLOWING CAREFULLY AND TO KEEP IT FOR REFERENCE THROUGHOUT YOUR MODERATORSHIP YEAR.

2. Contact details

Course Coordinator: Matthew Campbell CAMPBEM2@tcd.ie
Executive Officer: Alicia Vega genetics@tcd.ie
Head of School: Jane Farrar Jane.Farrar@tcd.ie
DUTL: Juan Pablo Labrador labradoj@tcd.ie
School Manager: Laoise Quinn laoise.quinn@tcd.ie

Module code	Module	Coordinator	Email
GEU44212	Medical Genetics	Prof Jane Farrar	Jane.Farrar@tcd.ie
GEU44009	From Individuals to Populations to Species: Development, Behavior, Population Genetics and Evolution	TBC	
GEU44010	Dealing with data in genetic research	Prof Russell McLaughlin	mclaugr@tcd.ie
GEU44011	Molecular and Cellular Genetics	Prof Seamus Martin	MARTINSJ@tcd.ie
GEU44212	Capstone Project in Genetics	Prof Matthew Campbell	CAMPBEM2@tcd.ie

NOTE: Minor changes to that described in this SS Human Genetics Handbook may be undertaken during the academic year and will be notified through email to students.

3. Key Locations

The course will be taught in the Smurfit Institute of Genetics and Moyne Institute of Preventive Medicine.

See the maps to each institute below:

- Smurfit Institute of Genetics: https://www.tcd.ie/Genetics/contact/
- Moyne Institute of Preventive Medicine: https://www.tcd.ie/Microbiology/contact/

Teaching venues:

- LTEE3 (East End)
- Dawson (Smurfit Institute of Genetics, 2nd floor)
- Genetics meeting room (Smurfit Institute of Genetics)

UG study areas:

- Genetics library
- Genetics attic room

4. Deadlines and dates to remember

Please note all dates are provisional and may be subject to change.

Review submission deadline:	**Semester 1**	**Tuesday 4th of November 2025**
Project lab work to start:	**Semester 1**	**Tuesday 4th of November 2025**
Project lab work to end:	**Semester 2**	**Friday 13th February 2025**
Project research seminar	**Semester 2**	**Between 16th - 20th February 2026**
Project submission deadline:	**Semester 2**	**Monday 2nd March 2026**
Project presentation final version upload on Blackboard	**Semester 2**	**Monday 23rd March 2026**

- **All work should be submitted to Blackboard by the dates above no later than midnight.**
- **Work submitted LATE WILL BE PENALISED by a 5% reduction in mark per day, or part thereof, that the assignment is late.**

Provisional dates for Moderatorship exams 2026

GEU44010	26th March	13.00-16.30
GEU44009	Wed 22nd April	10.00-13.00
GEU44011	Fri 24th April	10.00-13.00
GEU44208	Mon 27th April	10.00-13.00

Reception to meet externs: Wed 13th May (evening)
Vivas: Thu 14th May
Results posted: Fri 15th May

NOTE: *Vivas* have always been part of the standard process in the Genetics department and all students will be required to attend their *viva* meeting with the external examiner. It is important for the external examiners to meet each student and discuss their experience of the course. The examiners will also be able to get a sense of how each student has performed in their exams and this is important for the integrity of the course in ensuring we are marking the exams fairly and students are receiving an overall mark that reflects their ability. It is important to note that external examiners can never bring a students' mark down.

*****Please note: we won't be able to disclose any marks in advance of main exams because all marks are subject to approval by the External Examiner and cannot be made available in advance of the final examiners' meeting. The same rule applies for any deferred exams***.**

5. Timetable

Timetable will be circulated to students. Please be advised that the timetable might slightly vary subject to Lecturers availability.

6. Behaviour in the Department

We expect high standards of personal behaviour in the Department consistent with its professional status. Please do not invite students from other Departments or friends into the Smurfit Institute, and when you are in the building please keep the noise down. Alcohol and smoking are absolutely forbidden. Students are not permitted to go on the roofs of the buildings.

7. Prizes in Genetics

Gold medals are awarded by the Board to candidates of the first class who have shown exceptional merit in assessments for their honours bachelor degree. To be eligible, candidates must pass each year which counts towards their degree result, on the basis of a single annual attempt (which includes deferrals), and achieve the overall degree mark specified for their programme, which is set at 75 per cent or above. See https://www.tcd.ie/academicregistry/exams/gold-medals/ for individual programme thresholds.

8. Academic Writing

8.1 Use and Referencing of Generative IA

Aligned with the College Statement on Artificial Intelligence and Generative AI in Teaching, Learning, Assessment & Research (2024), the use of GenAI is permitted unless otherwise stated. Where the output of GenAI is used to inform a student's document or work output, this usage should be acknowledged and appropriately cited, as per Library guidelines on acknowledging and referencing GenAI. From an academic integrity perspective, if a student generates content from a GenAI tool and submits it as his/her/their own work, it is considered academic misconduct in accordance with College Academic Integrity Policy.

8.2 Academic Integrity and Referencing Guide

Students of Trinity College Dublin must commit themselves to acting responsibly and ethically, embracing integrity in all actions and interactions as members of the College community, in keeping with the Council approved Statement of Integrity.

All students need to complete the Ready Steady Write plagiarism tutorial, a resource developed by the Centre for Academic Practice and eLearning (CAPSL) at Trinity College Dublin, to help you understand and avoid plagiarism and develop your academic writing skills and academic integrity. It is designed so that you can view it from beginning to end or in sections and topics.

Reference/Source

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

Statement of Principles on Integrity

Academic Integrity Policy

Library Guides - Academic Integrity

Coversheet Declaration

9. Teaching and Learning

9.1 SS course structure

The Senior Sophister course is divided into:

- 4 Core Modules
- Capstone Project

The Moderatorship Examination includes assessment of the Research Project, the Review, Problems in Genetics, the Papers and Viva of the final examination. The year counts for a total of 60 ECTS credits which are allocated as follows:

Human Genetics	
Semester 1 (S1)	**Semester 2 (S2)**
Core Modules	
GEU44208 Medical Genetics in the Era of Precision Medicine (10 credits)	
GEU44009 From Individuals to Populations to Species: Development, Behavior, Population Genetics and Evolution (10 credits)	
GEU44010 Dealing with Data in Genetic Research (10 credits)	
GEU44011 Molecular and Cellular Genetics (10 credits)	
Capstone Project	
GEU44212 (20 credits)	

(For your information, when consulting papers from previous years, the exam structure was changed for lecture modules in 2016-17. For 2011-2016 papers 1 and 2 were similar (examining the same modules) and papers 2 and 3 were similar. Up to 2011, Papers 1 and 3 were similar, and Papers 2 and 4 were similar. What was previously paper 6 is now paper 4, having been paper 5 for a few years. Problems were formerly assessed during the summer exams as paper 5, and then as paper 4 up to 2022. Therefore, while the content is largely the same and you should use past exams as a reference, please note that the current structure is in place since academic year 2022/2023.

You can find past exam paper following the link
https://www.tcd.ie/academicregistry/exams/student-guide/

9.2 Time Management

Over the course of this year you will have various ongoing assignments in addition to attending lectures and studying the material for the final exams. In particular, the Review and Project contribute significantly to your overall assessment. Generally, an ECTS unit corresponds to 20-25 hours of *overall* commitment by a student. It is very important to try and balance the effort you give to all these commitments. You may also have to adjust to an irregular work schedule as demanded by the experiments you are carrying out in the course of your project.

9.3 Modules

GEU44208 Medical Genetics

1. Module Code: GEU44208

2. Module Name: Medical Genetics

3. Contact Hours: 32 hours

4. Module Personnel: Prof Jane Farrar, Prof Matthew Campbell

5. Learning Aims: The study of genomes, and predominantly but not exclusively the human genome, is radically altering health care today and will do so even to a greater extent in the future. The module aims to provide an overview of the burgeoning field of molecular medicine/precision medicine and the genetic information that underpins this field and incorporates basic and applied aspects of medical genetics.

A key focus of the module will be to illuminate how genomic information is currently being utilised in medicine. Topics covered will include current disease diagnostics using genetic methodologies and information, the interpretation of genetic information and provision of information to patients in a clinical setting. The clinical trial process and pharmacogenomics will also be briefly covered.

Genomic information as a driver of novel therapeutic development for a range of disorders will be outlined with powerful examples in the clinic or in preclinical development. The multivalent aspects of genomic medicine including development of therapies for Mendelian and multifactorial diseases will be outlined. Identification of disease targets and development of targeted therapies from gene replacement therapies to gene editing therapies will be reviewed. Ethical debates regarding genetic information will be discussed, as will issues such as somatic versus germline therapies, among others. The student will be provided with a comprehensive overview of this truly powerful and rapidly expanding field.

6. Module content:

Week	Day & Time	Lecture Topic & Lecturer
5	Mon 22nd Sep 12:00-13:00	MC: *Vascular and Nervous system development; A common evolution*
5	Tue 23rd Sep 11:00-12:00	JF: *Introduction to medical genetics in the era of precision medicine*
6	Mon 29th Sep 12:00-13:00	MC: *The blood-brain and blood retina barriers*
6	Tue 30th Sep 11:00-12:00	*JF: Molecular tools for development of cell and gene therapies*
7	Mon 6th Oct 12:00-13:00	MC*: The retinal vasculature*
7	Tue 7th Oct 11:00-12:00	*JF: Challenges and successes in gene therapies*
8	Mon 13th Oct 12:00-13:00	*MC: The genetics of age-related macular degeneration (AMD)*
8	Tue 14th Oct 11:00-12:00	*JF: CNS disorders: target identification & therapeutic development*
9	Mon 20th Oct 12:00-13:00	MC*: AMD; Therapies and therapeutic target identification*
9	Tue 21st Oct 11:00-12:00	*JF: CNS disorders: therapeutic development for MND*

10	**Review Week**	
11	Mon 3rd Nov 12:00-13:00	MC*: Alzheimer's Disease.*
11	Tue 4th Nov 12:00-13:00	JF: Systemic targets for gene therapy, challenges & progress.
11	Wed 5th Nov 9:00-10:00	JF: Haemophilia A & B: Current status of gene therapies
11	*Wed 5th Nov 10:00-11:00*	*JF: Tutorial*
12	*Mon 10th Nov 12:00-13:00*	MC*: Alzheimer's Disease: Therapies and therapeutic target identification*
12	Tue 11th Nov 12:00-13:00	*JF:* Ex vivo and in vivo gene editing therapies
12	Wed 12th Nov 9:00-10:00	JF: Oligonucleotide therapies: Chemistries, MOAs
12	Wed 12th Nov 10:00-11:00	JF: Oligonucleotide therapies for Duchenne muscular dystrophy & spinal muscular atrophy
13	Mon 17th Nov 12:00-13:00	*MC: Autosomal dominant leukoencephalopathies and treatment options*
13	Tue 18th Nov 12:00-13:00	JF: Duchenne muscular dystrophy: minigenes as therapies
13	Wed 19th Nov 9:00-10:00	JF: Defining targets, designing therapies: current status for ocular disease
13	Wed 19th Nov 10:00-11:00	JF: *Principles of Human genetics, lecture 1*
13	*Thu 20th Nov 9:00-10:00*	*MC: Tutorial*
13	Thu 20th Nov 10:00-11:00	*MC: The genetics of 22q11 deletion syndrome*
14	Mon 24th Nov 12:00-13:00	MC: *22q11 deletion syndrome: The lived experience*
14	Tue 25th Nov 12:00-13:00	JF: Principles of Human genetics, lecture 2
14	*Wed 26th Nov 9:00-10:00*	*Jane TBC*
14	Wed 26th Nov 10:00-11:00	JF: Principles of Human genetics, lecture 5
14	Thu 27th Nov 9:00-10:00	MC: *Multiple sulfatase syndrome: The lived experience*
14	Thu 27th Nov 10:00-11:00	MC*: Principles of Human genetics, lecture 3*
15	Mon 1st Dec 12:00-13:00	*MC: Principles of Human genetics, lecture 4*
15	*Tue 2nd Dec 12:00-13:00*	*JF: Tutorial*
15	*Wed 3rd Dec 9:00-10:00*	*Jane TBC*
15	*Wed 3rd Dec 10:00-11:00*	*Jane TBC*
15	Thu 4th Dec 9:00-10:00	MC: *Principles of Human genetics, lecture 6*
15	*Thu 4th Dec 10:00-11:00*	*MC: Tutorial*

NOTE: venue LTEE3

7. Learning Outcomes: Upon successful completion of this module, students will gain an understanding the aspects of precision medicine including the identification of disease targets and the development of innovative therapies.

8. Recommended Reading List: Relevant literature will be recommended by the teaching staff and where possible, will be made available via *Blackboard*.

9. Assessment Details: Assessment is exclusively by a 3 hours end of year exam.

10. Module Coordinator

Prof Jane Farrar Jane.Farrar@tcd.ie

GEU44009 From Individuals to Populations to Species: Development, Behavior, Population Genetics and Evolution

1. Module Code: GEU44009

2. Module Name: From Individuals to Populations to Species: Development, Behaviour, Population Genetics and Evolution

4. Contact Hours: 40 lecture hours

5. Module Personnel: Prof Dan Bradley, Dr Kevin Mitchell, Prof J. Pablo Labrador, Dr Anahit Hovhannisyan, Dr Lukasz Niezabitowski

6. Learning Aims: This module builds on the knowledge from earlier academic years and encompasses core concepts in genetics to develop a deeper conceptual and specific knowledge and understanding of the interplay of development, heritability and evolutionary processes.

The molecular evolution lectures will consider various aspects of evolution covering large-scale genomic events down to small changes in genes and regulatory sequences. These will be discussed in the context of speciation, adaptation, the evolution of sex and sex chromosomes, the evolution of development (morphological evolution), and fundamental patterns of genetic variation arising through mutation and selection.

The population genetics lectures will explore evolutionary concepts in a more recent timeframe, specifically looking at human population genetics. These lectures will consider human adaptive evolution, the migratory paths of ancient modern humans as illustrated by patterns of genetic diversity, the contributions and legacy of archaic humans, and regional diversity and adaptations in human populations.

The development lectures will focus on the genetics of nervous system development and neuronal specification. There will be special emphasis on the generation of diversity in the nervous system and a focus on the spinal cord and axon guidance.

Finally, this module will consider the genetics of behaviour and explore this in terms of how it is shaped by the interplay of evolution and development. These lectures will consider how organisms are adapting to their environment and how evolution shapes that, and how development realises that. These lectures will encompass fundamental concepts of heritability and association studies and expand into the genetics of complex traits including intelligence, sexuality and personality. The lectures will also consider how all of these concepts can be used to understand the genetics of neurodevelopmental disorders.

7. Module content:

Week	Day & Time	Lecture Topic & Lecturer
		Semester 1
4	Tue 16th Sep 9:00-10:00	Ape and human phylogeny (Bradley)
4	Tue 16th Sep 10:00-11:00	"
5	Tue 23rd Sep 9:00-10:00	Human evolution within Africa (Bradley)
5	Tue 23rd Sep 10:00-11:00	"
5	Wed 24th Sep 14:00-15:00	Archaic *Homo* species and their ancient genomes (Dan Bradley)
5	Wed 24th Sep 15:00-16:00	"
6	Tue 30th Sep 9:00-10:00	Archaeological genomes and the peopling of Europe (Bradley)

6	Tue 30th Sep 10:00-11:00	"
6	Wed 1st Oct 9:00-10:00	Origin of Novel Genes (Hovhannisyan)
6	Wed 1st Oct 10:00-1100	Adaptive conflict and evolutionary antagonisms (Hovhannisyan)
7	Tue 7th Oct 9:00-10:00	Outlying genome regions: the Y chromosome; recently selected regions (Bradley)
7	Tue 7th Oct 10:00-11:00	"
7	Wed 8th Oct 9:00-10:00	Evolution of Recombination Hotspots (Hovhannisyan)
7	Wed 8th Oct 10:00-11:00	Mutation and Genome Evolution (Hovhannisyan)
8	Tue 14th Oct 9:00-10:00	Whole Genome Duplication (Niezabitowski)
8	Tue 14th Oct 10:00-11:00	Speciation (Niezabitowski)
8	Wed 15th Oct 9:00-10:00	Evolution of Development (Hovhannisyan)
8	Wed 15th Oct 10:00-11:00	Sex chromosome evolution (Hovhannisyan)
9	Wed 22nd Oct 9:00-10:00	Evolutionary Fates of duplicated genes (Niezabitowski)
9	Wed 22nd Oct 10:00-11:00	"
10		---------*Study/Review Week*---------
Semester 2		
22	Wed 21st Jan 9:00-10:00	Neural induction (Labrador)
22	Wed 21st Jan 10:00-11:00	"
22	Thu 22nd Jan 9:00-10:00	Introduction to behavioral genetics (Mitchell)
22	Thu 22nd Jan 10:00-11:00	"
23	Wed 28th Jan 9:00-10:00	Neuroectoderm patterning and neural precursor specification (Labrador)
23	Wed 28th Jan 10:00-11:00	"
23	Thu 29th Jan 9:00-10:00	Genetics of Intelligence (Mitchell)
23	Thu 29th Jan 10:00-11:00	"
24	Wed 4th Feb 9:00-10:00	Diversity generation in the nervous system (Labrador)
24	Wed 4th Feb 10:00-11:00	"
24	Thu 5th Feb 9:00-10:00	Personality genetics (Mitchell)
24	Thu 5th Feb 10:00-11:00	"
25	Wed 11th Feb 9:00-10:00	Spinal cord as a model for neuronal specification (Labrador)
25	Wed 11th Feb 10:00-11:00	"

25	Thu 12th Feb 9:00-10:00	Sexual behavior (Mitchell)
25	Thu 12th Feb 10:00-11:00	"
26	Wed 18th Feb 9:00-10:00	Guiding axons to their targets (Labrador)
26	Wed 18th Feb 10:00-11:00	"
26	Thu 19th Feb 9:00-10:00	Neurodevelopmental disorders (Mitchell)
26	Thu 19th Feb 10:00-11:00	"
27	Wed 25th Feb 9:00-10:00	TBC (Labrador)
27	Wed 25th Feb 10:00-11:00	TBC (Labrador)

NOTE: venue LTEE3

8. Learning Outcomes: Students completing this module will develop a strong sense of the interplay of genetics, evolution and development on the scales of species differences, individual variation and developmental stochasticity. This enriches the conceptual insights and cultivates a deeper understanding of how genetics forms a common language for understanding all aspects of biological diversity.

9. Recommended Reading List: Primary literature (journal articles) will be referenced in the lecture notes.

10. Assessment Details: Assessment is exclusively by a 3 hours end of year exam.

11. Module Coordinator: TBC

GEU44010 Dealing with Data in Genetic Research

1. Module Code **GEU44010**

2. Module Name **Dealing with data in genetic research**

4. Contact Hours 16 + 2 introduction tutorial

5. Module Personnel Dr Russell McLaughlin, Dr Lara Cassidy, Prof Dan Bradley, Dr J. Pablo Labrador

6. Learning Aims This module will explore data science in genetics as it stands in the 21st century, covering multiple layers of abstraction from the fundamentals of computer science to high-level statistical models used to relate data to biology. Through a taught component, students will learn how genetic data are represented in a computer, how the problem of data manipulation and processing is optimised and structured into algorithms, how these algorithms are chained into analytical pipelines and the form taken by the outputs, from file format specifications to model-based representations of error and uncertainty.

Students will gain applied experience at each of these levels of abstraction and will become familiar with some of the most commonly-used academic software in genetics and genomics. This taught component will be evaluated through continual assessment, supplemented with an examination presenting analytical problems in genetics drawn from the diversity of subject areas taught in their undergraduate programme. Students will also gain experience in synthesis and meta-analysis of data across studies through the submission of a literature review. Upon completion of the module, students will understand the relevance of data science in genetics and will be equipped with a highly-transferrable skillset that enables them to structure a problem algorithmically, manipulate commercial and academic software for their own purposes, and relate the outputs of their approach back to the biological question.

7. Module content: Programme of lectures/practicals –

Week	Day & Time	Lecture Topic
		Semester 1
4	**Thu 18th Sep 9:00-11:00**	**How to write a literature review on a genetics/human genetic topic** (Labrador& Cassidy)
5	**Thu 25th Sep 9:00-11:00**	**From data to discovery I:** a critical look at scientific literature (McLaughlin)
6	**Thu 2nd Oct 9:00-11:00**	**The data deluge:** how to handle data using computers (McLaughlin)
8	**Thu 16th Oct 14:00-16:00**	**Thinking algorithmically:** sequence alignment (McLaughlin)
9	**Thu 23rd Oct 14:00-16:00**	**Back to biology:** annotation and variants (Cassidy)
10	***---------Study/Review Week---------***	
12	**Mon 10th Nov 14:00-16:00**	**Starting into statistics:** analytical descriptors of genotype data (Cassidy)
13	**Mon 17th Nov 14:00-16:00**	**Data within data:** extracting more from what you have (Cassidy)
14	**Mon 24th Nov 14:00-16:00**	**Where statistics meets art:** data visualization and hypothesis testing (Bradley)
15	**Mon 1st Dec 14:00-16:00**	**From data to discovery II:** working together, sharing data and resources (Maire Ni Leathlobhair)
		Semester 2
22-27	***Mon 9:00-10:00***	***Problems paper tutorial – TBC***

22-27	*Mon 10:00-11:00*	*Problems paper tutorial – TBC*
22-27	*Mon 16:00-17:00*	*Problems paper tutorial – TBC*
24	*Wed 4th 12:00-13:00*	*Problems paper tutorial (Labrador)*
31	*Thu 26th Mar 13:00-16:30*	*Problems paper exam (venue- Genetics library and PG room) TBC*

NOTE: venue LTEE3

Content Description

From data to discovery I: a critical look at scientific literature
In this lecture we will introduce the module as a journey from raw data -- numbers, text and ones and zeros -- to discoveries presented in the scientific literature. The module will take students through many of the levels of abstraction required to understand this journey, as well as offering some hands-on practical application of the concepts presented in the lectures. In this lecture, we will begin by presenting some published data and critically evaluating its presentation and merit in the literature, and asking the question, "How did the authors get here?" This forms the basis for the lectures that will follow.

The data deluge: how to handle data using computers
We will now begin to think deeply about the nature of data -- how it is generated in genetics, how it is represented and how it is stored. This immediately brings us into the domain of computer science, so this lecture will describe the fundamentals of how computers are designed and how they work, and, using this knowledge, we will learn about how computers are harnessed to do the bidding of data scientists. We will discuss how data science is applied to answer questions in biology using statistical approaches applied to genetic data.

Thinking algorithmically: sequence alignment
Fundamental to most applications of data science is the idea that a problem can be solved with an algorithmic approach using structured data. As most genetic data begins with DNA sequence, we will look at this concept using an example of a famous and centrally important algorithm: Smith-Waterman alignment. This algorithm provides an optimal solution to the alignment of two DNA sequences (or any character sequence), given a set of alignment parameters. We will explore in-depth how the algorithm works and various implementations of the approach. The lecture will also introduce more modern approaches that depend on data compression to align the many billions of sequence reads that come from a typical next-generation sequencing experiment to the three gigabase human reference genome.

Back to biology: annotation and variants
Now that we have aligned DNA sequences, this lecture will begin to explore how we can use this structured data to return to the biological questions we set out to answer. How do we extract biological information from DNA sequences? We will look at methods that can be adopted to annotate sequences as genic or regulatory, as well as approaches for discovering and genotyping variation present in an individual's genome. Systems for expressing uncertainty are an important component of these methods; these will be discussed along with systematic ways to represent and interrogate resulting data using file format specifications and open-source software.

Starting into statistics: analytical descriptors of genotype data
With a set of variant calls for the genome of an individual or group of individuals, we can answer a lot of biological questions -- from demography to disease. But an intimate understanding of the dataset in

hand is crucial to avoid snags that can introduce bias or lead to entirely false conclusions. In this lecture we will examine ways that genotype data can be interrogated to better understand it, including statistical approaches to summarize genotypes and variants in a meaningful way. We will also contrast summary measures that operate on a regional (locus-specific) or global (genome-wide) level to reveal patterns and structure within our data.

Data within data: extracting more from what you have
Often raw data needs some level of processing before it can be usefully analyzed to answer biological questions. But even processed data can still contain useful information embedded within it which can be extracted using specialist approaches. In this lecture we will look at methods that can be used to reveal and harness useful structure within genotype data to answer deeper and richer biological questions.

Where statistics meets art: data visualization and hypothesis testing
Data visualization is one of the most important components of completing a scientific study. This begins with early visualization of raw or unanalyzed data to conduct "sanity checks" and ensure data are clean and representative of the study. From here, the task of the analyst is to decide on an approach to statistically explore their data and choose appropriate visualization strategies. This lecture will provide a refresher in many of the concepts that are required for this process and describe the journey through visualization and hypothesis testing to arrive at a scientific conclusion.

From data to discovery II: working together, sharing data and resources
Now that we have analyzed our data, conducted statistical tests and generated figures that support our conclusions, we will take a look back over the process and discuss dos and don'ts of working in large and data-rich collaborative environments, principles of data and resource sharing, and concepts associated with developing analytical pipelines and procedures for reproducibility and open science.

Problems in Genetics

Problems in Genetics incorporate genetics knowledge alongside a genetical approach to thinking about biological questions. This is where you put your learning into action. The type of problems you may be faced with is broad and diverse and may include experimental design, interpretation and analysis of experimental results, and quantitative analysis of genetic data. By its very nature, this is not something where you can learn the answers, but you can train yourself to better recognise a productive approach (this is where practice on past questions is very useful).

Problems in Genetics is examined in late March/early April, before the summer exams, and past exam questions will be a valuable inspiration for study. The assessment will take place over 3.5 hours and you will need to answer all questions (typically 12-15 problems). The problems will be of a varied nature and degree of difficulty and may be based on material or concepts from both the Fresher and Sophister years.
These will test your ability to explain data, handle evidence and solve problems. You may bring notes, photocopies, the 'Introduction to Genetic Analysis' by Griffiths et al. textbook and a calculator to this exam. For practice, you may find useful problem sets in many genetics textbooks. Data will often be taken from published papers.

Review
You should arrange via e-mail to meet with your review supervisor during the first week of term to discuss the review topic and to seek their advice regarding the published literature.

Review Presentation

Format

Your review must not exceed 4,000 words. What is included in this limit? All text except:

Title page, index page/table of contents, references section, appendixes and academic integrity page, page numbers, page header or footer.

What is included? All the rest including text in figure legends or within tables

Word limit is strictly enforced. However, a margin of 10% above the limit is allowed and there is no penalty below. Shorter, concise sentences are encouraged. Limit may not apply for some LENS students.

It must be typed in Times New Roman 12 point font, with a line spacing of 1.5. It must be submitted not later than Monday January 5th, 2026), with the word count verified and included in the submitted version (see Appendix IV).

- The work should be divided into: Title page; Abstract; Introduction; Main text to be organized in subsections with headings, according to topic; Conclusion and discussion; References. It may also contain an index/table of contents (encouraged)
- Pages must be numbered.
- Figures and Tables: If figures and tables are included, they must be numbered (Figure 1, etc.).
- Each Figure must be accompanied by an explanatory legend (text attached to the Figure that explains what it shows). If you have included a figure or table that you did not draw yourself, you must write your own legend and cite the source in the legend, e.g. "figure from (Jones et al 2018)". If you used a published figure and modified it cite the as "adapted from …
- Each Figure/Table must be referred to from a sentence in the main text, to direct the reader to them when relevant.
- Citations: When the text refers to a published paper, the citations in the text must use a format like these examples (using EndNote APA 7th format should take care of everything):
    - XYZ was observed (Behan, 2011). For papers with 1 author.
    - XYZ was observed (Behan and Murphy, 2011). For papers with 2 authors.
    - XYZ was observed (Behan et al., 2011). For papers with 3 or more authors.
    - Most references are cited at the ends of sentences like this (Behan et al., 2011). However, it is sometimes more useful to write something like Behan et al. (2011) found that XYZ was not true.
    - Do not use a citation system based on numbers.
    - Do not include the initials of the authors in the citations in the main text.
- References section: The references section (also called the bibliography) is the list of papers that have been cited in the text. It appears at the end of the review. It gives more details of the papers that have been cited: complete list of authors (initials and surname); year of publication; title of the article; journal name; volume number; page numbers (first and last). Please use APA 7th format with EndNote as it will take care of all the formatting automatically. PLEASE DO NOT INCUDE NUMBERS Example:
    - Behan M, Cahill S, Murphy C (2011) The plastid genome of higher plants. Nature Reviews Genetics 103: 56-58.
- References to websites should not be used as a substitute for the primary published literature in the field under review and should only be cited if there is no published paper as an alternative. If you need to cite a website, put the address (URL) directly in the text of as a footnote, not in the references section.
- The review's title and your name should be on the front cover.

- Make sure you are aware of College policies regarding academic misconduct (Appendix I, II and III) and complete the 'Ready, Steady, Write' online tutorial.
- Review submission is online and you must upload an electronic copy of your review to *Blackboard* before the deadline.

Other Review requirements:

WARNING: Your review must not contain material produced via a process of "copying" or "cutting and pasting" of text from any source: this is plagiarism. Also, the "paraphrasing" of text (i.e. changing few words in a sentence or paragraph) constitutes plagiarism. It can be readily detected by computer- based searches of your submitted work. For more information on plagiarism please see the appendix.

Plagiarism or use of AI where not authorized is a serious offence. Any submitted work (e.g. your Review) that contains content not adhering to College's academic integrity policy will be marked punitively and may even be awarded a mark of 0%.

Note that your supervisor will be able to gauge your level of understanding of the subject matter in your meetings with them, and this may be taken into account in their assessment of the final review. In addition, students may be invited to present their review and questioned on its content

Declaration information

Please include the declaration statement (Appendix IV) on your review. Statement should be signed (electronic signature will suffice) and dated.

The review must be your own work. Note that your supervisor will be able to gauge your level of understanding of the subject matter in your meetings with them, and this may be taken into account in their assessment of the final review.

Review Assessment

The review will be assessed taking into account the following criteria:

- Difficulty of topic
- Scientific content
- Clarity of thinking / Comprehension of the subject
- Ability to write scientifically
- Structure of the review
- Awareness of the recent literature on this subject
- Presentation

8. Learning Outcomes:

Upon completion of this module, students will be able to:

- Critically evaluate the presentation and visualisation of data in scientific papers
- Describe the journey from data to discovery in genetics
- Describe the nature of the various types of data used in genetics
- Identify and explain the function of the various components of a modern computer
- Describe different DNA sequencing technologies in technical detail

- Implement the Smith-Waterman alignment algorithm and describe other alignment/assembly algorithms
- Dissect the components of modern genomic file format standards (SAM, VCF)
- Explain various methods for extracting biological information from aligned sequences
- Analyse large genotype datasets using a suite of statistical methodologies
- Use advanced algorithms to turn genotype data into a richer set of haplotypes
- Describe strategies for data visualisation in genetics
- Chain algorithms into pipelines and build data analysis scripts
- Share data and code via online repositories such as Github
- Write a literature review

9. Recommended Reading List: There is no specific reading list for this module.

10. Assessment Details:

- **Continual assessment assignments** (2 credits total): provided weeks 4, 6, 10 and 12; due weeks 6, 8, 12 and 14
- **Problems in genetics examination** (4 credits total). 3.5h exam
- **Literature review** (4 credits total)

11. Module Coordinator

Prof Russell McLaughlin Email: mclaugr@tcd.ie

GEU44011 Molecular and Cellular Genetics

1. Module Code GEU44011
2. Module Name Molecular and Cellular Genetics
3. Semester taught Semester 1 and Semester 2
4. Contact Hours 30
5. Module Personnel Prof Seamus Martin, Prof Adrian Bracken, Prof Mani Ramaswami
6. Learning Aims This module will deepen the student's understanding of a range of core concepts in in molecular and cellular genetics, including: chromatin organization and regulation, the non-coding genome, epigenetic control of gene expression (Chromatin Biology and Epigenetics), protein folding/misfolding and protein degradation systems, and will also explore how proteins are activated and inactivated during biological processes with examples drawn from the study of regulated cell death. The module will start with an overview of protein structure, post-translational modifications of proteins, the diverse impacts of mutation on protein function, as well as cellular organization and organelle function (General concepts in molecular cell biology). This will be followed by lectures on protein handling systems, which includes an examination of chaperone systems involved in protein translation, as well as translocation of proteins to the ER and mitochondria. This will be followed by an examination of cellular stress management and signaling, RNA chaperone systems, and prions/amyloids in mammals and yeast, which also are modulated by chaperones and cell stress signaling pathways (Proteostasis). We will then explore cell signaling and the activation of gene expression programmes during cell death and inflammation; genetic conservation and divergence of a key cellular process—regulated cell death—from lower to higher organisms will also be explored in detail (Genetic control of Programmed Cell Death). This module will also examine genetic mutation and disease by exploring cancer and how this arises, ranging from the discovery of cancer-promoting genes (oncogenes and tumor suppressor genes), how the latter promote tumorigenesis, and how mutations affecting genes that regulate the epigenome contribute to the development of cancer. We will also explore cancer therapy via targeting specific cancer-associated mutations (precision oncology), as well as recent developments in targeting chromatin-remodeling proteins in cancer (Cancer Genetics). Overall, this module on Molecular and Cellular Genetics will cover a broad sweep of molecular biology, illustrating key principles of how genes are expressed, how their protein products exert their functions, how proteins are folded, post-translationally modified and degraded, and how gene mutations lead to the subversion of these functions to provoke disease.

7. Module content: Programme of lectures

Week	Day & Time	Lecture Topic & Lecturer
		Semester 1
7	Fri 10th Oct 11:00-12:00	**Recap of general concepts in cell and molecular biology (Prof. Seamus Martin)** **Lecture 1.** Protein structure, diversity, function, post-translational modifications and effects of mutation. Cellular organelles and their primary functions
7	Fri 10th Oct 12:00-13:00	**Recap of general concepts in cell and molecular biology (Prof. Seamus Martin)** **Lecture 2.** Cell signaling and the activation of gene expression programmes, with examples from signals that promote cell division, cell differentiation, cellular activation and secretion (in inflammation) and cell death.
8	Fri 17th Oct 11:00-12:00	**Proteostasis (protein handling) (Prof. Mani Ramaswami)** **Lecture 1 .** Chaperone systems (small hsps, hsp40, hsp70 and hsp60/chaperonins) involved in protein translation, translocation (ER and mitochondria); stress management and signaling (hsp90)
8	Fri 17th Oct 12:00-13:00	**Proteostasis (protein handling) (Prof. Mani Ramaswami)** **Lecture 2.** Chaperone systems (small hsps, hsp40, hsp70 and hsp60/chaperonins) involved in protein translation, translocation (ER and mitochondria); stress management and signaling (hsp90)
10		***---------Study/Review Week---------***

11	Tue 4th Nov 10:00-11:00	**Proteostasis (protein handling) (Prof. Mani Ramaswami)** **Lecture 3-4.** Proteosomal; lysosomal and autophagy systems
11	Fri 7th Nov 11:00-12:00	**Proteostasis (protein handling) (Prof. Mani Ramaswami)** **Lecture 5.** RNA chaperone systems. How they were discovered and mechanisms by which they work with some examples.
11	Fri 7th Nov 12:00-13:00	**Proteostasis (protein handling) (Prof. Mani Ramaswami)** **Lecture 6.** RNA chaperone systems. How they were discovered and mechanisms by which they work with some examples.
12	Tue 11th Nov 9:00-10:00	**Proteostasis (protein handling) (Prof. Mani Ramaswami)** **Lecture 7.** Biological condensates (RNP granules, which are modulated by both protein and RNA chaperones)
12	Tue 11th Nov 10:00-11:00	**Proteostasis (protein handling) (Prof. Mani Ramaswami)** **Lecture 8.** Prions/amyloids in mammals and yeast (which also are modulated by chaperones and cell stress signaling pathways).
12	Fri 14th Nov 11:00-12:00	**Proteostasis (protein handling) (Prof. Mani Ramaswami)** **Lecture 9.** Prions/amyloids in mammals and yeast (which also are modulated by chaperones and cell stress signaling pathways).
12	Fri 14th Nov 12:00-13:00	**Cancer Genetics (Prof. Adrian Bracken)** **Lecture 1.** Introduction & the Discovery of Oncogenes
13	Tue 18th Nov 9:00-10:00	**Cancer Genetics (Prof. Adrian Bracken)** **Lecture 2.** The Discovery Tumour Suppressor Genes
13	Tue 18th Nov 10:00-11:00	**Cancer Genetics (Prof. Adrian Bracken)** **Lecture 3.** Cancer Pathways and Cancer Evolution
13	Fri 21st Nov 11:00-12:00	**Cancer Genetics (Prof. Adrian Bracken)** **Lecture 4.** Chromatin regulator genes are mutated in cancer and the relevance of DNA methylation.
13	Fri 21st Nov 12:00-13:00	**Cancer Genetics (Prof. Adrian Bracken)** **Lecture 5.** Precision Oncology: Targeting Oncogenes, Cancer Pathways, and non-genetic mechanisms
14	Tue 25th Nov 9:00-10:00	**Cancer Genetics (Prof. Adrian Bracken)** **Lecture 6.** The EZH2 Polycomb gene in cancer and newly approved EZH2 inhibitor therapy. Oncohistones
14	Tue 25th Nov 10:00-11:00	**Cancer Genetics (Prof. Adrian Bracken)** **Lecture 7.** Treating cancers with loss of SWI/SNF genes – a powerful lesson from Drosophila genetics.
14	Fri 28th Nov 11:00-12:00	**Cancer Genetics (Prof. Adrian Bracken)** **Lecture 8.** Chromatin regulator genes in leukaemia and new therapies.
14	Fri 28th Nov 12:00-13:00	**Cancer Genetics (Prof. Adrian Bracken)** **Lecture 9.** The non-coding genome in cancer
Semester 2		
22	Mon 19th Jan 11:00-12:00	**Chromatin biology and Epigenetics (Prof. Adrian Bracken)** **Lecture 1.** Revision of Histone and DNA Modifications
22	Mon 19th Jan 12:00-13:00	**Chromatin biology and Epigenetics (Prof. Adrian Bracken)** **Lecture 2.** Chromatin regulators in development and human developmental disorders
22	Fri 23rd Jan 9:00-10:00	**Chromatin biology and Epigenetics (Prof. Adrian Bracken)** **Lecture 3.** DNA methylation in development and disease
22	Fri 23rd Jan 10:00-11:00	**Chromatin biology and Epigenetics (Prof. Adrian Bracken)** **Lecture 4.** Polycomb group proteins in development and cellular identity
23	Fri 26th Jan 11:00-12:00	**Chromatin biology and Epigenetics (Prof. Adrian Bracken)** **Lecture 5.** Genome organization in development and disease
23	Fri 26th Jan 12:00-13:00	**Chromatin biology and Epigenetics (Prof. Adrian Bracken)** **Lecture 6.** Long non-coding RNAs
23	Fri 30th Jan 9:00-10:00	**Chromatin biology and Epigenetics (Prof. Adrian Bracken)** **Lecture 7.** X-chromosome inactivation and genomic imprinting
23	Fri 30th Jan	**Chromatin biology and Epigenetics (Prof. Adrian Bracken)**

	10:00-11:00	**Lecture 8.** Transgenerational epigenetic inheritance.
24	Fri 6th Feb 9:00-10:00	**Chromatin biology and Epigenetics (Prof. Adrian Bracken)** **Lecture 9.** The non-coding genome in disease.
24	Fri 6th Feb 10:00-11:00	**Genetics of Programmed Cell Death (Prof. Seamus Martin)** **Lecture 1:** Why cell death control is essential to multicellularity Cell death control: necrosis versus apoptosis, pathology and disease implications.
25	Mon 10th Feb 11:00-12:00	**Genetics of Programmed Cell Death (Prof. Seamus Martin)** **Lecture 2.** Recognition and removal of apoptotic versus necrotic cells from tissue. Cell death as a driver of inflammation: DAMPs & IL-1 family members.
25	Mon 10th Feb 12:00-13:00	**Genetics of Programmed Cell Death (Prof. Seamus Martin)** **Lecture 3:** Identification of genes involved in programmed cell death Genetic screens in C. elegans. Genetics screens in Drosophila
25	Fri 14th Feb 9:00-10:00	**Genetics of Programmed Cell Death (Prof. Seamus Martin)** **Lecture 4:** Genetics of mammalian PCD Molecular conservation of PCD control from nematodes to humans
25	Fri 14th Feb 10:00-11:00	**Genetics of Programmed Cell Death (Prof. Seamus Martin)** **Lecture 5:** Caspases as key players, their role and function.
26	Fri 21st Feb 9:00-10:00	**Genetics of Programmed Cell Death (Prof. Seamus Martin)** **Lecture 6:** Routes to caspase activation: instrinsic, extrinsic and CTL attack
26	Fri 21st Feb 10:00-11:00	**Genetics of Programmed Cell Death (Prof. Seamus Martin)** **Lecture 7:** Bcl-2 family genes and the intrinsic pathway to cell death in mammals
26	Fri 21st Feb 14:00-15:00	**Genetics of Programmed Cell Death (Prof. Seamus Martin)** **Lecture 8:** The CTL pathway to PCD in mammals. Death receptors and the extrinsic pathway.
26	Fri 21st Feb 15:00-16:00	**Genetics of Programmed Cell Death (Prof. Seamus Martin)** **Lecture 9:** Cell Death and Disease

NOTE: Venue LTEE3

8. Learning Outcomes: Upon successful completion of this module, students will have a deeper understanding of the mechanisms regulating protein as well as RNA folding via dedicated chaperones and protein degradation via the proteasome or autophagy. They will also learn about diseases that can result from the accumulation of insoluble protein/RNA aggregates (biological consensates). They will have acquired advanced knowledge concerning how gene expression can be regulated through modification of chromatin (i.e. epigenetic control), by addition of methyl and other groups to histone proteins as well as DNA, and how epigenetic control influences cell fate and development. Students will also acquire cutting-edge knowledge concerning how cell death is regulated in a programmed manner, how this influences many aspects of immunity, and how dysregulated cell death can lead to cancer and other diseases. They will be able to describe experimental approaches that have been used to identify genes that regulate cell death in *C. elegans*, *Drosophila melanogaster* and in mammals, and how this knowledge has led to improvements in cancer therapy, as well as our understanding of other diseases. They will have acquired knowledge concerning how oncogenes and tumor suppressor genes were discovered, the cellular signaling pathways these genes regulate, how such oncogenes are targeted therapeutically in 'precision oncology', and how epigenetic regulators can play a role in the development of cancer.

9. Recommended Reading List: Specific papers from the primary scientific literature will be cited by individual lecturers during their course and students are encouraged to source these papers themselves.

10. Assessment Details: Assessment is exclusively by a 3 hours end of year exam.

11. Module Coordinator : Prof. Seamus Martin Email: martinsj@tcd.ie

GEU44212 Capstone Project

For those of you considering a further career in research, your Project will be quite an important first step. It is a chance for you to develop your skills in the lab and demonstrate your aptitude for research to your supervisor, who will likely be an important source of letters of reference for you in your further career.

Normally, you are expected to start your research project shortly after Study Week in Semester 1 (dates listed *deadlines and dates to remember*). As usual, some projects will be entirely computational/analytical. You should contact your supervisor by e-mail at the start of term and arrange to meet with them to discuss the project and background reading material. Thus, prior to arriving in the lab, you should have already become familiar with the relevant background literature on the research topic; material that should prove useful when writing the Introduction section of your report.

You must finish all experimental work and computer analysis on the date specified (dates listed *deadlines and dates to remember*), and submit the write-up on or before the deadline.

Supervision: A member of the lecturing staff will be the supervisor of your project. In many cases this member of staff will assign a postdoctoral fellow or PhD student in their lab to assist you on a day-to-day basis. However, the member of staff is your primary supervisor. They are responsible for the scientific direction of your project, and it is important that you discuss the progress of your project with them regularly.
Your project will be marked by your supervisor and a second member of the academic staff.

Time commitment: Every project is unique and the time commitment can vary. As students, it is ultimately up to you to decide how much time to spend on your project, but it is wise to consider this in the context of the ECTS weighting and the other demands on your time. The project is worth 20ECTS. A rough rule-of-thumb is that you should expect about 20-25 hours of effort by the student per ECTS. So that works out as 300-375 hours for your project. Note, this includes all your reading, writing-up, and actual lab work.

If for argument's sake we assume 300 hours overall, and then presume that 1/3 of the time is spent on the write up, then that leaves 200 hours. Over the course of 10 weeks that equates to 20 hours per week working on the project: primarily lab work, analysis, and literature research.

Research seminar: You must give a 10-minute seminar on your research project to a group including the members of your lab and at least one other lab. **This will count for 5% of your project grade**.

The intention is that you produce 8-10 slides, but not more than this. This is not intended as a comprehensive run-through of everything you have done in the lab (it is possible that you will do a longer presentation with your supervisor as a normal part of being in the lab). The purpose of this is to get you thinking about the overall picture of your project without getting lost in the nitty gritty.

For your presentation you should try to address the following points: (1) What is my question and why is it interesting?; (2) What have others done?; (3) What have I done?; (4) What does it mean?

You should email a copy of your presentation to your supervisor prior your research seminar and upload your final presentation file on Blackboard after your presentation on **Monday 23rd March**. This will be made available to the external examiners as part of their evaluation of your project.

Drafts: You should discuss the overall structure of your project report with your supervisor, before

you start writing it in detail, and certainly at least 1 month before the submission deadline. Your supervisor will be willing to discuss the outline of your report and to advise you on its structure. They will also be willing to discuss the details of specific Figures or Tables that you want to include in the Results. However, your supervisor will not read or edit draft versions of your report.

- Project report presentation: Your Project Report must not exceed **6,000 words** (*Follow the same guidelines specified for the review above)*. It must be typed in Times New Roman, 12 point font, with a line spacing of 1.5. It must be submitted on time, with the word count verified and included in the submitted version. Word limit is strictly enforced. However, a margin of 10% above the limit is allowed and there is no penalty below. **Shorter, concise answers are encouraged**. Limit may not apply for some LENS students.

WARNING: Your project must not contain material produced via a process of "copying" or "cutting and pasting" of text from any source: this is plagiarism. Also, the "paraphrasing" of text (i.e. changing few words in a sentence or paragraph) constitutes plagiarism. It can be readily detected by computer- based searches of your submitted work. For more information on plagiarism please see the appendix. Plagiarism or use of AI where not authorized is a serious offence. Any submitted work that contains content not adhering to College's academic integrity policy will be marked punitively and may even be awarded a mark of 0%.

The report should be written following the structure of a scientific paper. It should be composed of an Abstract (250 words maximum), Introduction, a section on Materials and Methods, a section on Results, and a Discussion. It should have a Reference list with full references (use the referencing system and style specified above for the Review). In summary a competent scientist should be able to repeat your experiments or your analysis having read your report. Your report will be marked down if it is not presented well.

In summary:

1. The title of your work and your name should be on the front cover.
2. The following page should be a Table of Contents.
3. All pages must be numbered.
4. The work should be subdivided into the following sections:
   Abstract; Introduction; Materials and Methods; Results; Discussion; References
   [Results and Discussion may be combined where appropriate]
5. Figures and tables must be numbered.
6. Each figure and table must be accompanied by an explanatory legend.
7. References **must** be presented using the same style indicated above for your Review.
8. **Submission is through Blackboard** using the Turnitin system to screen for possible plagiarism. The results will be made available to you.
9. You must include a signed statement concerning ***College's academic integrity policy*** and **word count**. (Appendix VI)

You should write your project report with the non-expert geneticist in mind, *i.e.,* don't assume intimate knowledge of either the general field or the specifics of your project on the part of the reader. **Remember that your report won't just be read by your project supervisor, but also by a second member of staff and by the external examiner** – and they will not know anything about the project except what you tell them in your report. They won't know what you were trying to do, unless your report explains it.

In writing up your project you must use the scientific literature as your model.

The Abstract is very important because it should summarize (in not more than 250 words) the rationale for doing the experiments, what your main results were, and what you conclude from them. Your Introduction (which should not exceed 3,000 words), should introduce the research area, but it should also introduce your specific project. What was the aim of the project? What questions were you trying to answer? Were you testing an hypothesis? Why was your particular experimental strategy chosen over alternative ways of answering the same question? The Introduction should end with a formal declaration of the specific aim(s) of the research that was undertaken.

Your Materials and Methods should resemble those of a journal article, with perhaps a little more detail. You should not, however, devote 10 pages with explicit details of every solution you made up; reference to standard manuals will suffice.

Your Results section should be written as in a scientific paper, describing the rationale and design of experiments as you go along and not merely presenting data. **The Results section should not just be a collection of Figures or Tables with no text.** It should talk the reader through the experiments you did, why you did them, and what these experiments show. Figures and Tables should be referred to in the text.

The Discussion section is where you discuss what your results mean, and how they fit into the field. Do they support previous work? Contradict it? Did you answer the questions you set out in the Introduction?

In your writing you should try to display yourself as a scientist. Show your knowledge of the field and the place of your project in the field. Describe the design of the project showing how you expected it to produce useful results. If there is a hypothesis be sure to state it clearly. If there are puzzling conflicts in the published literature that you set out to resolve, make sure you explain these. Describe your experimental results adequately and clearly. Do not include trivial data. Accuracy, clarity and orderliness are essential. Interpret and explain your data. Give your own ideas. Make your own judgments. Be thoughtful, critical, original and constructive. Avoid pedantry. None of these hints is easy to realize - one good idea is worth a thousand pages. Make sure you emphasize what you believe to be the most important discoveries and ideas.

Assessment of the Project: The project will be assessed taking the following criteria into account:

- Difficulty of project
- Understanding of literature/project
- Clarity of thinking
- Ability to design experiments
- Ability to analyse and discuss experiments
- Commitment, effort and behaviour in the laboratory
- Ability to work independently
- Presentation and content of write-up

It is important to emphasize that marks are not allocated solely on the basis of the experimental results obtained – *i.e*. there is NOT a direct relationship between the quantity of results obtained and marks awarded. Instead it must be evident, during your stay in the laboratory and in the write-up of your project, that you have read the literature, formulated a hypothesis, designed appropriate experiments to test this hypothesis (to include all appropriate controls), written all experimental details in you laboratory notebook, interpreted the results and evaluated them to decide if they are consistent with your hypothesis and that you were capable of bringing a “problem-solving” approach to bear on difficulties encountered with experiments. The assessment will include an evaluation of how well you performed ALL these tasks.

9.4 Marking Scale

Note that these guidelines are for use as a general reference. Differences may occur between disciplines.

	Mark 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.
	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-2	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.
U.G		Ungraded

9.5 Attendance Requirements

Students must attend all tutorial modules and are strongly advised to attend all lectures on the remaining modules. Failure to attend one third of the scheduled contact hours may deem the student non-satisfactory.

9.6 Attendance at seminars

In addition to the lecture courses there are weekly departmental seminars scheduled for 1 p.m. on Fridays in the atrium (these will be announced a few days ahead of time). Whilst it is not compulsory to attend these seminars you are strongly recommended to do so.

Communication

Announcements will be made by emailing you at your **tcd.ie email address**. You must read this mailbox regularly or set it up to forward to an account that you do read. Your primary contact for each module is the module coordinator and for general queries the Course Coordinator.

9.7 Non-submission of coursework and absence form Examinations

Students are required to complete the assessment components for each module as prescribed by the programme regulations.

Students must complete and submit the assessment components specified for each module that constitute their programme of study. Completion includes the submission of continuous assessment and attendance at examinations and other tests.

Students who are experiencing difficulties that are affecting their ability to complete their assessment components should contact their Tutor at the earliest opportunity to discuss the nature of the difficulties and the possible options available in Trinity. Depending on the specific details of a case, options can range from a request for a short extension from a module coordinator to a formal request for a deferral made to the Senior Lecturer/Dean of Undergraduate Studies.

Where the difficulties are serious, a student may need to make a Student Case, through their Tutor, to the Senior Lecturer/Dean of Undergraduate Studies.

Where a student does not complete specified assessment component(s), the relevant Court of Examiners has the authority to make one of the following determinations:

i. Permission to defer to the reassessment session

ii. Re-assess in relation to the missed component(s) for the reassessment session, subject to capping the associated reassessment(s) at the pass mark

iii. Repeat year

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

Academic Policies

9.8 Progression Regulation

It is important that you aim to achieve high grades in your continuous assessments and exams because 30% of the marks obtained in the JS year will contribute directly to your Senior Sophister BA Moderatorship grade. Also, when **project and review topics for Senior Sophister year** are assigned next year, students with higher marks in JS year will tend to get their higher preference choices of topic.

The current regulations are included below (calendar 2024-25). Please check the most recent version of the calendar for any updates (TCD Calendar):

Progression regulations: Bachelor programmes

59 *Some programmes with professional accreditation have received a derogation from specific regulations on progression by the University Council. The relevant programme entry provides these details. See www.tcd.ie/teaching-learning/academic-affairs/ug-prog-award-regs/derogations /by-school.php. In order to rise with their class, students must obtain credit for the academic year by satisfactory attendance at lectures and tutorials and by carrying out, submitting and sitting the required assessment components. In addition, students must pass the year by achieving, at a minimum, an overall credit-weighted average pass mark for the year (40 per cent or 50 per cent, as per programme regulations) and either: (a) accumulate 60 credits by achieving at least the pass mark in all modules or (b) pass by compensation. All modules and components within modules are compensatable (except in particular professional programmes where compensation does not apply). To pass a year by compensation, in programmes that locate the pass mark at 40 per cent, a student must achieve the pass mark in modules carrying a minimum of 50 credits and obtain a module mark of at least 35 per cent in any remaining module(s). A student may accumulate a maximum of 10 credits at qualified pass where the mark lies between 35-39 per cent. To pass a year by compensation, in programmes that locate the pass mark at 50 per cent, a student must achieve the pass mark in modules carrying a minimum of 50 credits and obtain a module mark of at least 45 per cent in any remaining module(s). A student may accumulate a maximum of 10 credits at qualified pass where the mark lies between 45-49 per cent.*

60 *Progression is on an annual basis. Within a year students may carry failed modules from one semester to the next but not from one academic year to another; that is, they will not be able to rise to the next year of their programme until they have successfully completed the preceding year(s). Students who have not passed their year are required to present for reassessment when: (a) they obtain in excess of 10 credits at qualified pass (i.e. marks between 35-39 per cent where the pass mark is 40 per cent; or 45-49 per cent where the pass mark is 50 per cent); (b) they fail any module (i.e. achieving marks below 35 per cent where the pass mark is 40 per cent; or below 45 per cent where the pass mark is 50 per cent); (c) they do not obtain an overall pass mark for the year; (d) any combination of (a) - (c) occurs.*

61 *If a student has achieved both fail and qualified pass grades at the first sitting or has exceeded the 10 credit limit allowed for compensation and is not permitted to rise with their year, they must present for reassessment in all modules for which they obtained a fail and/or a qualified pass.*

62 *Different modalities of assessment to the first sitting are permitted in the reassessment session, as determined by the programme.*

63 *The same progression and compensation regulations as outlined above apply at the reassessment session. The overall credit-weighted average for the academic year will be calculated using the most recent marks achieved.*

64 *Students who fail to satisfy the requirements of their year at the reassessment session are required to repeat the year in full (i.e. all modules and all assessment components).*

65 *Students are permitted to repeat any year of an undergraduate programme subject to not repeating the same year more than once and not repeating more than two academic years within a degree course, except by special permission of the University Council.*

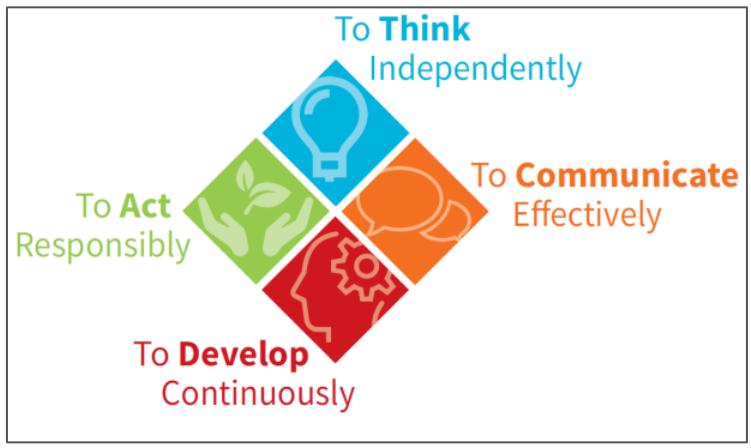
66 *The maximum number of years to complete an undergraduate degree is six years for a standard four-year programme and seven years for a five-year programme.* There is one reassessment session which is held at the beginning of Michaelmas term. Students are assessed in all failed modules from both semesters during the reassessment session. Students are not permitted to repeat

successfully completed assessments or examinations in order to improve their performance. In exceptional circumstances such as illness, if a student does not attempt exams at the end semester, they can defer until the reassessment examining period. Applications to defer exams should be made to the Senior Lecturer's Office via your tutor.

You are strongly advised to submit all the lab reports during the year, and not to miss the continuous assessment tests, because if you obtain a mark of < 35% in 3 or more modules you will be unable to progress to the Senior Sophister year (you'll have to repeat the JS year or leave College). If you fail to submit coursework on time, you will get a mark of zero for it.

9.8 Graduate Attributes

The Trinity Graduate Attributes represent the qualities, skills and behaviours that you will have the opportunity to develop as a Trinity student over your entire university experience, in other words, not only in the classroom, but also through engagement in co- and extra-curricular activities (such as summer work placements, internships, or volunteering).



The four Trinity Graduate Attributes are:

- To Think Independently
- To Act Responsibly
- To Develop Continuously
- To Communicate Effectively

Why are the Graduate Attributes important?

The Trinity Graduate Attributes will enhance your personal, professional and intellectual development. They will also help to prepare you for lifelong learning and for the challenges of living and working in an increasingly complex and changing world.

The Graduate Attributes will enhance your employability. Whilst your degree remains fundamental, also being able to demonstrate these Graduate Attributes will help you to differentiate yourself as they encapsulate the kinds of transversal skills and abilities, which employers are looking for.

How will I develop these Graduate Attributes?

Many of the Graduate Attributes are 'slow learned', in other words, you will develop them over the four or five years of your programme of study.

They are embedded in the curriculum and in assessments, for example, through undertaking independent research for your final year project, giving presentations and engaging in group work.

You will also develop them through the co-curricular and extra-curricular activities. If you help to run a club or society you will be improving your leadership skills, or if you play a sport you are building your communication and team-work skills.

9.9 Student Feedback Evaluation

References/Sources:

Student Evaluation and Feedback
Student Partnership Policy
Procedure for the Conduct of Focus Groups for Student Feedback on Modules and Programmes

10. Safety

Please make sure that you have received and have read the Science Faculty Safety Manual. Remember also that you are responsible for your own safety and that you have a responsibility not to endanger others by your actions. *(Refer to Appendix IX Safety Statement)*

11. Reading the literature

There is a huge literature in genetics. You will be given references to important recent papers in your lectures, which are an authoritative selection. You are expected to read as many of these as possible – if you have problems with them talk about them with your lecturers and you will also find that the research fellows and graduate students will be helpful. Reading and talking about original research papers is an important way of learning how to do science. You should also read reviews, for example the papers in *Nature Reviews Genetics*. Make a point of looking at *Nature* and *Science* each week.

You should aim to be familiar with any major discoveries in genetics reported in the literature during the year (which we may not have had the chance to include in our lectures). Examiners are often impressed by students who are familiar with the recent literature on a topic and incorporate references to it into exam answers, provided that it is relevant.

Assessments guidelines:

The overall Senior Sophister results will represent 70% of your final moderatorship grade. Modules are assessed by continuous assessment and/or by examination. The distribution scheme of marks between papers continuous assessment and practical work varies with each module and it is specified within its description. Specific exam dates as well as submission deadlines are also specified for each module and it is vital that you submit on time.

- Word limit: Word limit is strictly enforced. However, a margin of 10% above the limit is allowed and there is no penalty below. **Shorter, concise answers are encouraged**. Limit may not apply for some LENS students.
- Time: The allocated time includes submission of the answers. A 5-10min lateness will be allowed without penalty. Some LENS students are allowed extra time and, although module coordinator will be aware, the student should make sure required accommodations are taken into account.
- Submission: Blackboard is the preferred submission platform. Submissions are allowed in the system past the deadline (they are flagged in red as late in Blackboard).

Penalties are applied when time or length are exceeded, and it only applies to the time or length beyond the allowed margin.

- Exceeding the word limit: Marker will consider when grading the ability of the student to adhere to the specified limit.

- Exceeding the time limit: Open book exams, 5% grade reduction/15min.
  Assignments, review 5% grade reduction/day.

No penalties will apply if there are mitigating circumstances or the student has been allowed to exceed the limits. The onus is on the student to provide evidence of mitigating conditions. These incidences should be approved on a case-by-case basis by the Course Coordinator for consistency.

12. Commons Dinner

The Genetics department recently started a tradition of inviting all SS students to one of the Commons dinners during Hillary Term. Commons is the nightly meal served in the Dining Hall on campus to all Fellows and Scholars. While Commons has been a tradition for centuries, we hope this Genetics Department tradition will continue for as long! The concept of Commons was originally for almost all of the College population to gather where they might meet and discuss ideas.

(Week 31 - Thursday 26th March)

13. External examiner

The External Examiner for the Genetics degree is Professor Jonathan Pettitt, University of Aberdeen.

14. Your career ahead

You should start thinking now about what you want to do after Moderatorship. There are many openings for geneticists. If you are aiming to do postgraduate research (MSc or PhD), you should aim for a 1st or a II.1 to have the best choice of a place to study, and to qualify for certain scholarships (e.g. Irish Research Council scholarships). Students with II.2s have also been accepted in recent years for research degrees here and abroad. If you are planning to apply for postgraduate courses in the USA you must prepare for and sit the GRE (Graduate Record Examination) during the Michaelmas term, and you may also need to submit a Visa application several months in advance of travel.

A TCD's Careers Office staff will talk to the class on a date to be arranged. Information on the careers advisory service is provided under Appendix VI of this booklet.

If you require written references: you should obtain these from your Research Project supervisor in the first instance. If you worked in a laboratory during the summer, the head of that lab would be a good second referee. If an additional reference is required, ask your Review supervisor.

Your referees will also be happy to give you **advice on how to present your CV** and how to write cover letters.

And finally …

You will have a challenging year ahead. Others have found it really worthwhile. All the staff wish you the best of luck.

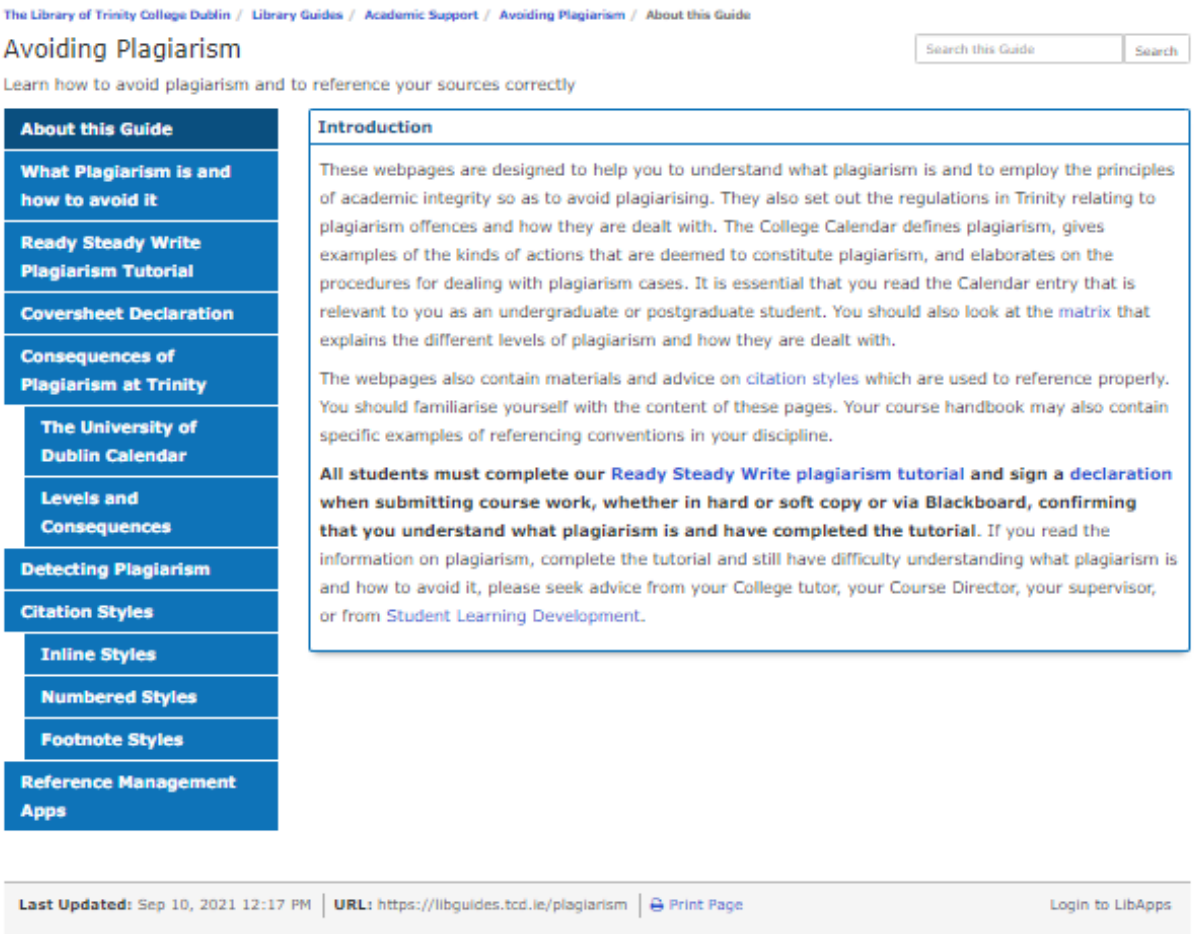
Prof Matthew Campbell

Head of Department

APPENDICES

I. Online central repository

All students are required to access the **online central repository** in which all information and resources on plagiarism have been consolidated. This facility explains what plagiarism is, and how it can be avoided. The central repository is being hosted by the Library and is located at http://tcd-ie.libguides.com/plagiarism



- Plagiarism Policy - https://www.tcd.ie/teaching-learning/academic-policies/assets/plagiarism-mar2020.pdf
- Calendar, Part III, General Regulations & Information, Section I 'Plagiarism' https://www.tcd.ie/calendar/graduate-studies-higher-degrees/complete-part-III.pdf

II. Ready Steady Write Plagiarism Tutorial

All students are required to complete the **Ready Steady Write plagiarism tutorial**, a resource developed by the Centre for Academic Practice and eLearning (CAPSL) at Trinity College Dublin, to help you understand and avoid plagiarism and develop your academic writing skills and academic integrity.
www.tcd.ie/Library/support/plagiarism/story.html

Plagiarism can occur in many forms, for example copying another student's work, or quoting directly from published sources without acknowledgement, or using as your own slightly modified versions of the published work of others. Thus, in writing essays or other project work you are warned against copying verbatim, or copying and making minor modifications to, phrases, sentences, paragraphs, sections or illustrations from other published work.

Students and staff have access to Turnitin computer software (see Appendix IV) that can readily detect plagiarism. The Department will use this sensitive anti-plagiarism tool to screen essays and other forms of formal assessed work and Turnitin reports can be used as evidence if plagiarism is suspected. **Accordingly, you are strongly recommended to synthesize your own language at all times**. A full statement of the College's position on plagiarism can be found in the College Calendar

III. Turnitin – Blackboard

Turnitin is an online software program that aids plagiarism prevention. It allows students and lecturers to check students' work for academic integrity by searching for text that is improperly cited or potentially plagiarised. Once uploaded to Turnitin, assignments are compared to millions of books, journal articles, web pages and student papers, identifying any unoriginal material within the essay. The software then creates an Originality Report which highlights and quantifies unoriginal content.

For more information, see http://tcd-ie.libguides.com/plagiarism/detecting-plagiarism and to access the student training tutorial, see http://www.turnitin.com/en_us/training/student-training

IV. Declaration to include on review

TRINITY COLLEGE DUBLIN THE UNIVERSITY OF DUBLIN

SCHOOL OF GENETICS AND MICROBIOLOGY

SMURFIT INSTITUTE OF GENETICS

DECLARATION FOR REVIEW

I have read and I understand the academic integrity provisions in the General Regulations of the University Calendar for the current year, found at http://www.tcd.ie/calendar.

I have also completed the Online Tutorial 'Ready Steady Write', located at https://libguides.tcd.ie/academic-integrity/ready-steady-write

I declare that this assignment fully complies with College's academic integrity provisions.

Signed.....

Dated .....

The **word count** of this document (with the exception of the References section is:

Signed.....

Dated .....

VI. Declaration to include on project

TRINITY COLLEGE DUBLIN THE UNIVERSITY OF DUBLIN

SCHOOL OF GENETICS AND MICROBIOLOGY

SMURFIT INSTITUTE OF GENETICS

DECLARATION FOR PROJECT

I have read and I understand the academic integrity provisions in the General Regulations of the University Calendar for the current year, found at http://www.tcd.ie/calendar.

I have also completed the Online Tutorial 'Ready Steady Write', located at https://libguides.tcd.ie/academic-integrity/ready-steady-write

I declare that this assignment fully complies with College's academic integrity provisions.

Signed……

Dated ……

The **word count** of this document (with the exception of the References section is: ☐

Signed……

Dated ……

VII. Safety statement

To ensure the health and safety of everyone in the Genetics department, we will share with you the departmental Safety Statement. **We ask you to read and abide by the rules given in the Safety Statement.** Please note that failure to comply with the procedures outlined in the departmental Safety Statement may result in disciplinary action. The information provided below is for convenience only; it does not substitute for the departmental Safety Statement.

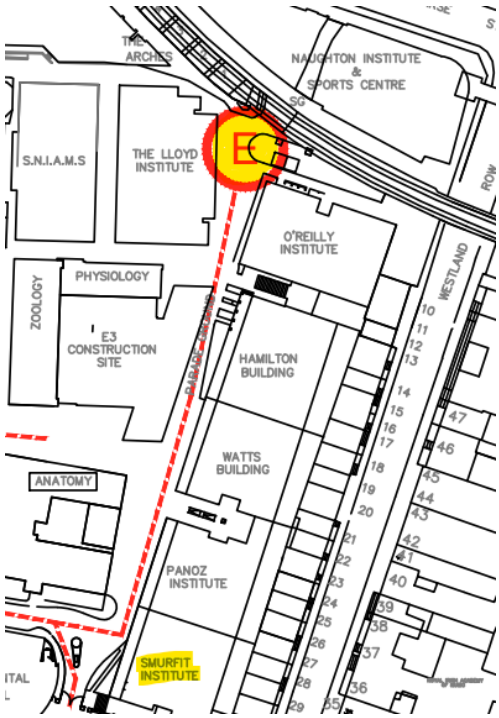
Here we highlight the most relevant safety rules concerning undergraduate students who enter laboratories and lecture theatres. These rules must be followed at all times.

General

- Students are not allowed to enter laboratories unless they are authorized to do so.
- Students are not permitted to work in laboratories unsupervised.
- Students must follow the instructions of laboratory supervisors at all times.
- Eating and drinking is prohibited in laboratories and lecture theatres.
- Smoking is strictly prohibited in all campus buildings.
- Do not leave coats, bags or personal belongings on lab benches or anywhere where they could cause an obstruction.
- Students should not congregate at the entrance to a lab or lecture theatre or at building entrances.

Fire safety

- In the event of a fire alarm, **LEAVE THE BUILDING** immediately using the nearest exit route.
- Report to the Genetics Department Assembly point 'E' shown on the map below, between the O'Reilly / Lloyd buildings.



Laboratory dress code

- Wear long trousers or skirts, and shoes with non-slip soles that fully cover your feet. Shorts, open-toed sandals, flip-flops, high heels, ballet pumps, crocs, and canvas shoes/runners are not permitted.
- Students must wear a suitable laboratory coat while working in a laboratory. “Howie-style” laboratory coats are preferred.
- Safety glasses must be worn when there is access/use of chemicals or potential exposure to biological agents containing aerosols. Those wearing spectacles must wear ‘Pulsafe’ kind which are worn over the normal spectacles. Contact lenses may constitute an additional hazard.
- Long hair must be properly tied back and adequately restrained.
- No loose hanging jewellery, headphones, or earbuds permitted in the laboratory.
- Gloves must be worn and changed as required in all laboratory environments involving the use of chemicals or biological agents.

Laboratory safety

- If any glass apparatus/container/pipette breaks while in use, inform a member of staff immediately.
- Ensure caps are replaced on all containers with chemicals when an experiment is completed.
- If you come into direct contact with chemicals, inform a member of staff immediately.
- Familiarize yourself with the location of first aid kits, safety showers, and eye wash stations in the laboratory you are working in.
- Students must familiarize themselves with the European Standard Chemical hazard symbols shown below.

 Gas under pressure Symbol: gas cylinder	 Explosive Symbol: exploding bomb	 Oxidising Symbol: flame over circle
 Flammable Symbol: flame	 Corrosive Symbol: corrosion	 Acute Health Hazard Symbol: flame over circle
 Acute toxicity Symbol: skull and crossbones	 Serious Health Hazard Symbol: health hazard	 Hazardous to the environment Symbol: environment

If you have any concerns about Health and Safety in the department, please contact the departmental Safety Officer (Sr. Technical Officer - Orla Deevy) or the Head of Department (currently Prof. Matthew Campbell).

For further information on Health and Safety, see the website of the College Safety office at https://www.tcd.ie/safetyoffice/

VIII. Academic Year Structure 2025/26

Trinity College Dublin — The University of Dublin

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

CTU — Page 1 of 1 — Last updated: 07/04/2025

https://www.tcd.ie/media/tcd/calendar/academic-year-structure/2025-26/academic-year-structure.pdf

IX. Careers Advisory Service

What do you want to do? How will you get there? We are here to support you in answering these and other questions about your career.

Finalists and Senior Sophisters

Meet Employers and/or Explore Further Study: You may have decided to seek employment directly after graduation and many employers visit Dublin to actively seek out talented graduates. For others, further study may be their preferred option. Your MyCareer dashboard will keep you informed.

Find Jobs: Personalise your MyCareer profile to receive email alerts tailored to your interests.

Attend class seminar: Typically this takes place in Michaelmas term and includes information on applying for postgraduate study and jobs.

GradLink Mentoring: An opportunity to get advice and support from a Trinity graduate.

Drop-In CV/ LinkedIn Clinics: We also provide support at a practical level, helping you to improve your applications, which will benefit you in securing your future, whether in employment or further study.

Practice Interviews: A practice interview tailored to the job/ course of your choice with practical feedback.

MyCareer: Log in to MyCareer to keep abreast of jobs, study and careers events of interest to you.

MyCareer

An online service that you can use to:

- Apply for opportunities which match your preferences - vacancies including research options
- Search opportunities- postgraduate courses and funding
- View and book onto employer and CAS events
- Submit your career queries to the CAS team
- Book an appointment with your Careers Consultant

Simply login to MyCareer using your Trinity username and password and personalise your profile.

Careers Advisory Service

Trinity College Dublin, 7-9 South Leinster Street, Dublin 2

01 896 1705/1721 | Submit a career query through MyCareer

MyCareer: mycareerconnect.tcd.ie

www.tcd.ie/ Careers/students/postgraduate/

TCD.Careers.Service

@TCDCareers

TCDCareers

tinyurl.com/LinkedIn-TCD-Connecting

Opening Hours

During term: 9.30am - 5.00pm, Monday - Friday

Out of Term: 9.30am - 12.30pm & 2.15 - 5.00pm, Monday - Friday