

SMURFIT INSTITUTE OF GENETICS

TRINITY COLLEGE DUBLIN

MODERATORSHIP IN HUMAN GENETICS

JUNIOR SOPHISTER HANDBOOK 2017/2018



This course was partially funded by the Irish government under the Human Capital Investment Operational Programme 2007-2013 and aided by the European Social Fund (ESF) under the 2007-2013 Community Support Framework (CSF)

Department's web address: <http://www.tcd.ie/Genetics>

Keys – from the Genetics secretary (Sue Holahan), €10 deposit.

Photocopier – in the atrium of the Smurfit Institute.

Printer and PCs – in Genetics Library (upstairs in Westland Row building). Spare paper and toner from Sue.

1. 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.

2. Lectures courses and attendance

Our aim during the Junior Sophister year is to provide you with a thorough grounding in the fundamentals of modern Genetics so that you will be well prepared for the challenges of the Senior Sophister year. We therefore expect you to attend all lectures; there are no optional JS courses.

3. 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.

4. JS course structures

The JS year consists of 12 modules: 6 lecture modules, 3 practical modules, and 2 assessed modules (tutorials and a literature review) and a Broad Curriculum module (see also list of modules below). Each module corresponds to 5 ECTS credits. Your marks for the 6 lecture modules come from the annual examinations in May. Your marks for the 6 other modules come from continuous assessment during the year. Therefore, half of your overall mark for the Junior Sophister year comes from items such as essays and lab books, so it is vital that you do these well and submit them on time.

5. JS exam papers

During the annual examination in May you will take five exams, one for each lecture module (i.e., GE3M07, GE3M09, GE3M13, GE3M15, and GE3M17). Copies of previous years' annual examination papers can be downloaded from www.tcd.ie/Local/Exam_Papers/index.html. Students should note however that course names and the format of exam papers was changed in 2012/13, so older exam papers do not correspond directly to the current course and module structure.

6. Literature Review

As part of your continuous assessment programme, you are required to write a literature review. Review titles will be allocated early in the first semester. The review must be submitted not later than **January 29th, 2018**. See also detailed review guidelines on page 11. Please note: Unless accompanied by a valid medical certificate, reviews submitted after this deadline will incur a 5% deduction for each day or part thereof, past due. Please contact Head of Department Prof Aoife McLysaght (Email: aoife.mclysaght@tcd.ie) with any queries in this regard.

7. Field Trip

A field trip will take place on **February 22-23, 2018** (dates to be confirmed). The field trip is organized by Prof. Pablo Labrador and will be held in the Kippure Estate (www.kippure.com) in the Wicklow Mountains. It is a great opportunity for staff and students to meet scientifically and socially in an informal setting. Each student is expected to present a short (15 minute) seminar on a

topical paper chosen by their supervisor and staff members will give a brief outline of their research interests.

8. Summer Vacation Research Experience outside Ireland

We encourage Junior Sophisters to gain experience working in a research laboratory during the summer vacation. Each year the Department awards 6 travel bursaries (4 Bill Vincent Awards, David McConnell award and James Watson award) on the basis of performance in the Senior Freshman exams, to enable students to carry out a vacation research project outside of Ireland. Dr. Matthew Campbell will advise interested students about placements in various research labs. However, it is the student's responsibility alone to arrange: air travel, Visas (where appropriate), work permits, and any insurance requirements. These arrangements should be made as far in advance as possible from the departure date – preferably in early January.

9. Summer Vacation Research Seminars

The current rising Senior Sophister students will present their research seminars towards the end of Michaelmas term. You will be advised of the date and venue of these seminars and will be expected to attend.

10. 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.

11. 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.

12. Prizes in Genetics and Human Genetics

The following prizes are awarded annually to students who have excelled during the Junior Sophister year:

a. Leslie Bloomer Prize in Human Genetics - awarded to the best-qualified student of Human Genetics (based on JS exam results) who in addition wishes to carry out research in the summer vacation prior to entering the Senior Sophister year.

b. Dawson Prize in Genetics - awarded to the best qualified student in Genetics (based on JS exam results) who in addition wishes to carry out research in the summer prior to entering the Senior Sophister year.

c. Barbara McClintock Prize in Human Genetics – awarded to Sophister student of Human Genetics who has excelled in oral presentation of a subject of his/her choice within the field of Genetics. This prize is awarded based on presentations made on the field trip.

d. Ronald A Fisher Prize in Genetics – awarded to Sophister student who has excelled in oral presentation of a subject of his/her choice within the field of Genetics. This prize is awarded based on presentations made on the field trip.

13. Passing the Junior Sophister Year

The regulations below are from the TCD Calendar (<http://www.tcd.ie/calendar/>). Please check the most recent version of the calendar for any updates.

1. GENERAL COLLEGE REGULATIONS

General College regulations with regard to examinations shall apply to all examinations in Science as set out in the University Calendar 2016/17

2. EXAMINATION REGULATIONS – JUNIOR SOPHISTER

- 2.1. Timetables for all Sophister examinations are published in advance of the dates of the examinations, and available on-line on the College website. The onus lies on each student to find out the dates of examinations by consulting these timetables. No timetables or reminders will be sent to any individual student.
- 2.2. Junior Sophister students must, in the first instance, sit the annual examination and meet the requirements of the course.
- 2.3. The Junior Sophister Annual Examination has a two-fold purpose. It is (a) the final examination for the Ordinary BA degree and (b) a qualifying examination to proceed to the Senior Sophister year as a Moderatorship candidate. A student who rises to, and completes, the Senior Sophister year, **but fails the Moderatorship examination**, is still qualified for the award of an Ordinary BA degree on the basis of a successful performance in the Junior Sophister examination.

Students who pass the Junior Sophister examination can have the Ordinary BA degree conferred if they do not choose, or are not qualified to proceed to Moderatorship. Except by special permission of the University Council, on the recommendation of the Course Director, the ordinary degree of BA may be conferred only on candidates who have spent at least three years in the course.

- 2.4. To pass the Junior Sophister examination, students must achieve a mark of 40% or higher in each of their modules, or pass by compensation or aggregation.
- 2.5. To compensate / aggregate students must
 - (i) obtain an overall mark of 40% or higher **AND EITHER (compensate)**
 - (ii) obtain individual marks of 40% or higher in modules to the value of 40 credits with a minimum mark of 30% in each of the failed modules up to a maximum of 20 credits.
OR (aggregate)
 - (iii) obtain individual marks of 40% or higher in modules to the value of 40 credits with a minimum mark of 30% in additional modules of at least 10 credits.
- 2.6. To qualify to proceed to Moderatorship, students sitting the Junior Sophister examination for the first time must pass the year and achieve a mark of 45% or higher in the overall examination.
- 2.7. Students who achieve an overall grade of 35% or higher, but who are not qualified to proceed to Moderatorship can repeat the Junior Sophister year in order to qualify to proceed to Moderatorship or qualify for an Ordinary BA degree.
- 2.8. Students whose overall mark is 34% or lower in the annual examinations are not permitted to repeat their year and must withdraw from the course.
- 2.9. If a student's examination result indicates the remark 'See tutor', the student must contact their tutor immediately. If appropriate, an appeal can be lodged by the tutor to the Court of First Appeal.
- 3.0. A student may not repeat the Junior Sophister year more than once, except by special permission

of the University Council.

- 3.1 The final degree award for students who pass the Senior Sophister examination will be comprised of a combination of the Junior Sophister and Senior Sophister marks in a proportion that depends on their particular degree program and outlined in the table below.

For students who will complete the Junior Sophister year in 2016/17		
Moderatorship	% of JS year	% of SS year
Genetics	20%	80%
Human Genetics	20%	80%

Please note:

- Rule 2.3: There are no 'repeat' exams in JS year. If you get a low mark in the May exams you cannot re-take the exams in August. That is a College-wide rule and it's because the JS exams are degree exams (for the ordinary B.A. degree). In exceptional circumstances such as illness, if a student does not attempt the annual exams in May, they can defer sitting the exams until the Supplemental examining period in August. Applications to defer exams should be made to the Senior Lecturer's Office via your tutor.

- Rule 2.5: 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 < 30% in 3 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. Half of your marks for the year come from continuously assessed modules such as lab reports. The other half come from the annual exams in May. All our modules are worth 5 ECTS credits. The minimum you need in order to progress to Senior Soph year is 40% in 8 modules and 30% in another 2 modules. You can get 0% in the remaining 2 modules, so long as your overall average across all 12 modules is $\geq 40\%$ (this is called passing by aggregation).

- Rule 3.1: It is important that you aim to achieve high grades in your continuous assessments and in the end-of-year JS exams because 20% 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.

13. **Textbook:** We recommend that you should buy a copy of *Introduction to Genetic Analysis – International Edition* (11th edition, 2015) by Anthony J. F. Griffiths, Susan R. Wessler, Sean B. Carroll, and John Doebley (published by W.H. Freeman and Co.). ISBN 1-4641-0948-6; £46.95 from Amazon.co.uk.

Teaching Modules for Junior Sophister Genetics and Human Genetics Students

All modules correspond to 5 ECTS credits. The 11 modules listed below plus a Broad Curriculum module amount to a total of 60 credits.

Module Code	Description	When?
GE3M07 BACTERIAL GENETICS	This module presents an evidence-based description of the basic cellular processes of transcription, translation and DNA replication in bacteria. The approach is to discuss in detail the players involved and their roles in each of the processes. The major mechanisms by which bacteria regulate expression of genetic material as well as aspects of bacterial replication and recombination will be discussed. The module covers the major events in transcription initiation, positive and negative control of transcription, coordinated control of transcription, the operon, the regulon, the stimulon, an introduction to global regulation, DNA structure and gene regulation, environmental adaptation through variations in gene expression, stereotypic and stochastic responses, and transposition – including insertion sequences IS1 and IS3 and transposons Tn3 Tn5, Tn7, Tn10 and bacteriophage Mu. Major features of the genetic code and suppression will be discussed together with mechanisms for the initiation, elongation and termination of translation. We will discuss DNA polymerases, the origin of chromosomal DNA replication (<i>oriC</i>) in <i>Escherichia coli</i> and the mechanisms by which the DNA replication is initiated and controlled. The special problems associated with replicating linear genomes and how they are surmounted will be discussed. In this context, the structure of telomeres, how they are replicated with telomerase and their association with aging will be discussed.	Semester 2
Lecture Modules GE3M09 EUKARYOTIC MOLECULAR GENETICS	This module introduces the molecular biology and genetics of eukaryotic organisms. Topics include: Eukaryotic molecular and cell biology; Eukaryotic gene expression; Protein turnover; The cell cycle; Plant molecular genetics; Epigenetics	Semester 2
GE3M13 NEUROGENETICS AND DROSOPHILA	The module will introduce the fundamentals of neuronal architecture, neuronal excitability and synaptic function, sensory systems, circadian rhythms, perception and learning and their analysis by genetic methods in model organisms (M. Ramaswami). It will introduce the genetics of neural development and behaviour, including psychiatric and cognitive genetics, and principles of nervous system evolution (K. Mitchell). These topics will also describe methods for neurogenetics in the fruitfly <i>Drosophila melanogaster</i> , the mouse and in humans. The module will also consider more generally the principles and logic of genetic analysis, using detailed examples from <i>Drosophila</i> (P. Labrador).	Semester 2
GE3M15 MEDICAL GENETICS	The module introduces the genetics of human disease, from simple Mendelian traits to complex multigenic diseases and gene/drug interactions. Topics include the development of medical genetics from 1752 to the 'post-genome' era; the spectrum of human autosomal recessive diseases; RFLP analysis and the statistical evaluation of linkage data; localization and isolation of the Huntington disease gene; congenital diseases caused by chromosomal imbalance; diseases involving repeat expansions; developments and	Semester 2

setbacks in the use of gene and molecular therapies for treatment of hereditary diseases; and pharmacogenomics (interaction of genetic background with drug response). The module also covers analysis of quantitative traits: complex human diseases such as type 2 diabetes; approaches to mapping genetic variants responsible for complex traits; heritability; genome wide association mapping.

GE3M17 EVOLUTIONARY GENETICS

This module provides an introduction to genetic variation – its origins and its evolutionary consequences. The information in DNA is not always transmitted accurately from one generation to the next. DNA sequences can change spontaneously by the process of mutation and inaccurate DNA repair, resulting in genetic variation (polymorphism) within populations. Variable sites at different positions in the genome get shuffled into new combinations by the process of genetic recombination that occurs during sexual reproduction. Whether a particular variant (allele) survives for a long time in a population or goes extinct depends on the evolutionary forces acting on the population. If a new allele is advantageous to the population, Darwinian natural selection will tend to increase its frequency in the population; alternatively, if the new allele is disadvantageous natural selection will tend to eliminate it. However, if the population is small, random events (genetic drift) can overcome the power of natural selection.

Semester
1

	Module Code	Description	When?
Practical Modules	GE3M21 MOLECULAR GENETICS LABORATORY	<p>GE3M21 comprises a set of robust experiment-based projects in microbial and molecular genetics that have given us consistently good results in the Junior Sophister class environment for more than twenty years. The central theme is gene expression and its regulation. GE3M21 will be administered on-line.</p> <p>In the labs, students work in groups of two. Each project runs over several weeks, with students performing successive experiments in two or three different projects during each session. The experiments provide invaluable hands-on experience of widely used experimental strategies and techniques in molecular genetics/ molecular biology, which include: the isolation and purification of genomic and plasmid DNA; the polymerase chain reaction (PCR); the use of agarose and polyacrylamide gel electrophoresis in the analysis of DNA, RNA and proteins; genetic transformation of <i>E. coli</i>; gene cloning and analysis in plasmid vectors; lacZ, GUS and GFP reporter gene assays; transduction etc.</p>	Semester 1
	GE3M23 ANALYTICAL GENETICS LABORATORY	<p>GE3M23 is a laboratory module that introduces students to genetic analysis and molecular genetics in the fruit fly <i>Drosophila melanogaster</i>, an important model organism. Students will learn basic fly husbandry; how to separate male and female <i>Drosophila</i> and identify virgin females; to identify dominant genetic markers associated with different balancer chromosomes; to map genes using balancer chromosomes; to use the UAS/Gal4 system to generate new phenotypes through misexpression of genes; to carry out a classical anatomical genetic screen for recessive lethal mutations involved in a developmental process (axonal guidance across the CNS midline); and to carry out a modifier screen for epistatic genetic modifiers of a phenotype.</p>	Semester 2
	GE3M11 GENOMICS	<p>The module will introduce core concepts in genomics, bioinformatics, and systems biology. Beginning with the sequencing of the first bacterial genome in 1995 and first draft of the human genome in 2001, our ability to determine the DNA sequences of complete genomes has revolutionized the way that genetic analysis is carried out. The result is that the study of genomes is central to all modern genetics. This module provides an introduction to:</p> <p>the methods and technologies used to sequence genomes; molecular genetics techniques that can exploit genomic data to be used to study the function of genes; bioinformatics, which is the use of computers to store and analyse genomic and other large-scale molecular biological data; and systems biology, which is the study of how genetic networks and whole cells work.</p>	Semester 1
	GE3M25 DATA HANDLING	<p>GE3M25 is a practical module focusing on the handling and analysis of data. It is made up of three parts, each of which is examined by continuous assessment.</p> <p>NGS data analysis (Dr. Karsten Hokamp)</p> <p>Following on from the bioinformatics component lecture module GE3M11, students will carry out a short project relating to the analysis of a next-generation sequencing data set. They will gain hands-on experience of using software tools including FastQC, Bowtie2, samtools, GEM and IGV.</p> <p>Computer programming in Python (Dr. Karsten Hokamp)</p> <p>Introduction to the Python programming language, with emphasis on applications to bioinformatics and DNA sequence analysis. Students learn to write programs to handle DNA</p>	Semester 1

sequence data, for example translate DNA into protein and to use regular expressions to search for motifs in sequences.

Statistics (Prof. Dan Bradley)

The objective is to make students see the need for understanding data analysis as a step preceding the design of new experiments. The lectures include:

1. Description of main concepts in Statistics including sampling, descriptive statistics and probability distributions.
2. Probabilities and Probability Distributions.
3. Hypothesis testing.
4. Analysis of Variance.
5. Linearity testing of relationships between variables.
6. Factor variance analysis and re-building of new hypothesis.

The course is highly active and requires the active participation of the students. This is assured by presenting example problems and by asking students to form groups to address the problem. The course is given in 4 sessions of two hours each and the understanding of the students is examined through a final test, which includes 4 questions. Two of the questions are short answers and the other two consist of developing a problem and unfolding the possible conceptual and statistical solutions.

Tutorials and Assessed Modules		
	GE3M31 REVIEW (GENETICS) OR GE3M33 REVIEW (HUMAN GENETICS)	Students write a review of the recent literature in a particular area of genetics research, supervised by individual members of the academic staff. The topic can be chosen by the student or suggested by staff. The objective of the review is to bring the reader up-to-date on the subject under review. Students should first consult major texts to understand the historical aspects of the subject, and then the most recent major published review articles to discover the current state of the field. They should find and critically assess the major research papers in the field during the previous approximately 5 years, and attempt to define the interesting questions that remain to be answered.
		Semester 1 and 2
	GE3M41 TUTORIAL (GENETICS) OR GE3M43 TUTORIAL (HUMAN GENETICS)	Students meet in small groups with lecturers for discussion and problem-solving in an informal setting. Topics include genetic analysis, mathematical genetics, medical genetics and ethics.
		Semester 1 and 2

Review guidelines

The objective of your review is to bring the reader up-to-date on the subject under review. Students should first consult major textbooks to understand the historical aspects of the subject, and then the most recent major review articles to discover the current state of the field. Students should attempt to critically review the major research papers in the field during the previous approximately 5 years and to define the interesting questions that remain to be answered. This more recent literature should be searched for new information and ideas and should form the main part of the students' review.

Try to avoid getting bogged down in unnecessary molecular detail in the review, e.g. long lists of names of proteins and a paragraph about each one of them. You should try to tell the reader how the system you're writing about works, how we know that this information is true, and what remains unknown. For example, imagine that you were writing the Wikipedia article about cars. You wouldn't include a list of all the parts in a Toyota. You would start by explaining some basic principles (The function of a car is to transport people. Cars transport people on roads, using wheels, unlike planes and trains. Most cars use an internal combustion engine...). Be careful in your review to distinguish between facts ("Smith et al. 2013 showed that...") and hypotheses ("Smith et al. 2013 proposed that..."), and avoid phrases like "It is thought that...".

Deadline

You must submit your review, by the deadline of **30th January 2017**, both as a printed copy and electronically via the **Turnitin** website (see separate instructions). Please note: Unless accompanied by a valid medical certificate, reviews submitted after this deadline will incur a 5% deduction for each day past due. Please contact Head of Department Prof Aoife McLysaght (Email: aoife.mclysaght@tcd.ie) with any queries in this regard.

Plagiarism

When writing your review, **be especially careful to avoid plagiarism!** The college regulations on plagiarism included at the back of this handbook. When submitting your review, you will be required to sign a statement that you have not plagiarised the work of others (see appended declaration on last page). This signed declaration must be included at the back of your review. Your review must not include any text that has been produced by a process of copying text from any source: this is plagiarism. The "paraphrasing" of text (i.e. changing a few words in a sentence or paragraph) also constitutes plagiarism. It can be easily detected by computer-based searches of your submitted work. Plagiarism is a serious offence. Any submitted work (e.g. your review) that contains plagiarized material will be marked punitively and may be awarded a mark of 0%.

The *Turnitin* system is designed to allow you to check your own text for possible plagiarism. Turnitin scans your text against a database that includes published papers, websites, and all material previously uploaded to *Turnitin*. It highlights matches between sections of text.

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

Please note: due to the length and number of reviews to be assessed, we may not be able to return marks to you before the annual exams in May.

Format

Your review must not exceed 7,000 words (i.e. all text, including figure legends and tables; but excluding the References section). 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, **30th January 2017**, with the word count verified and included in the submitted version (see last page of this handbook).

- The work should be divided into: Abstract; Introduction; Main text in sections according to topic; Conclusion; References.
- Pages must be numbered.
- Figures and Tables: Each Figure/Table must be numbered (Figure 1, etc.). Figures must have a legend (text attached to the Figure that explains what it shows). Each Figure/Table must be referred to from a sentence in the main text, to tell the reader when to look at it. You are allowed to copy Figures and Tables from papers or websites, provided that the legend cites the source clearly (“Figure taken from Smith et al., 2011”).
- Citations: When the text refers to a published paper, the citations in the text must use a format like these examples:
 - 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). 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 work must be bound (e.g. by ring binding), not stapled or clipped together. Read’s print centre on Nassau Street (back of courtyard beside the Kilkenny shop) do binding quickly and cheaply.
- The review’s title and your name should be on the front cover.
- You must also upload an electronic copy of your review to *Turnitin* before the deadline.

Plagiarism – Trinity College’s regulations (from the TCD Calendar)

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

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

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

Plagiarism can arise from actions such as:

- (a) copying another student’s work;
- (b) enlisting another person or persons to complete an assignment on the student’s behalf;
- (c) quoting directly, without acknowledgement, from books, articles or other sources, either in printed, recorded or electronic format;
- (d) paraphrasing, without acknowledgement, the writings of other authors.

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

- (i) fail to distinguish between their own ideas and those of others;
- (ii) fail to take proper notes during preliminary research and therefore lose track of the sources from which the notes were drawn;
- (iii) fail to distinguish between information which needs no acknowledgement because it is firmly in the public domain, and information which might be widely known, but which nevertheless requires some sort of acknowledgement;
- (iv) come across a distinctive methodology or idea and fail to record its source.

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

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

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

- (i) Any material used in a piece of work, of any form, that is not the original thought of the author should be fully referenced in the work and attributed to its source. The material should either be quoted directly or paraphrased. Either way, an explicit citation of the work referred to should be provided, in the text, in a footnote, or both. Not to do so is to commit plagiarism.
- (ii) When taking notes from any source it is very important to record the precise words or ideas that are being used and their precise sources.
- (iii) While the Internet often offers a wider range of possibilities for researching particular themes, it also requires particular attention to be paid to the distinction between one’s own work and the work of others. Particular care should be taken to keep track of the source of the electronic information obtained from the Internet or other electronic sources and ensure that it is explicitly and correctly acknowledged.

73 It is the responsibility of the author of any work to ensure that he/she does not commit plagiarism.

74 Students should ensure the integrity of their work by seeking advice from their lecturers, tutor or supervisor on avoiding plagiarism. All schools and departments should include, in their handbooks or other literature given to students, advice on the appropriate methodology for the kind of work that students will be expected to undertake.

75 If plagiarism as referred to in §70 above is suspected, in the first instance, the head of school will write to the student, and the student’s tutor advising them of the concerns raised and inviting them to attend an informal meeting with the head of school,⁷ and the lecturer concerned, in order to put their suspicions to the student and give the student the opportunity to respond. The student will be requested to respond in writing stating his/her agreement to attend such a meeting and confirming on which of the suggested dates and times it will be possible for the student to attend. If the student does not in this manner agree to attend such a meeting, the head of school may refer the case directly to the Junior Dean, who will interview the student and may implement the procedures as referred to under CONDUCT AND COLLEGE REGULATIONS §2.

76 If the head of school forms the view that plagiarism has taken place, he/she must decide if the offence can be dealt with under the summary procedure set out below. In order for this summary procedure to be followed, all parties attending the informal meeting as noted in §75 above must state their agreement in writing to the head of school. If the facts of the case are in dispute, or if the head of school feels that the penalties provided for under the summary procedure below are inappropriate given the circumstances of the case, he/she will refer the case directly to the Junior Dean, who will interview the student and may implement the procedures as referred to under CONDUCT AND COLLEGE REGULATIONS §2.

77 If the offence can be dealt with under the summary procedure, the head of school will recommend to the Senior Lecturer one of the following penalties:

- (a) that the piece of work in question receives a reduced mark, or a mark of zero; or
- (b) if satisfactory completion of the piece of work is deemed essential for the student to rise with his/her year or to proceed to the award of a degree, the student may be required to resubmit the work. However the student may not receive more than the minimum pass mark applicable to the piece of work on satisfactory re-submission.

⁷The director of teaching and learning (undergraduate) may also attend the meeting as appropriate. As an alternative to their tutor, students may nominate a representative from the Students’ Union to accompany them to the meeting.

**TRINITY COLLEGE DUBLIN
THE UNIVERSITY OF DUBLIN**

**SCHOOL OF GENETICS AND
MICROBIOLOGY**

SMURFIT INSTITUTE OF GENETICS

DECLARATION FOR REVIEW
(to be bound into your Review)

I have read and I understand the plagiarism 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 on avoiding plagiarism 'Ready Steady Write', located at <http://tcd-ie.libguides.com/plagiarism/ready-steady-write>.

I declare that this Review does not contain material which has been **PLAGIARISED**.

Signed.....

Dated

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

Signed.....

Dated

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.

Junior and Senior Fresh Students

Get Involved: Remember that your course of study, extra-curricular activities, voluntary and part-time work all provide opportunities for developing skills and gaining an insight into your career preferences. In your Senior Fresh year, look out for short-term internship opportunities.

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

Junior Sophisters

Attend class seminar: Typically this takes place in Hilary term and includes information on applying for work experience and internships and postgraduate study.

Get work experience: The programme of summer work experience and internships is particularly relevant to Junior Sophisters. Personalise your MyCareer profile to receive email alerts tailored to your preferences.

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

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



TCD.Careers.Service



TCDCareers



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



@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