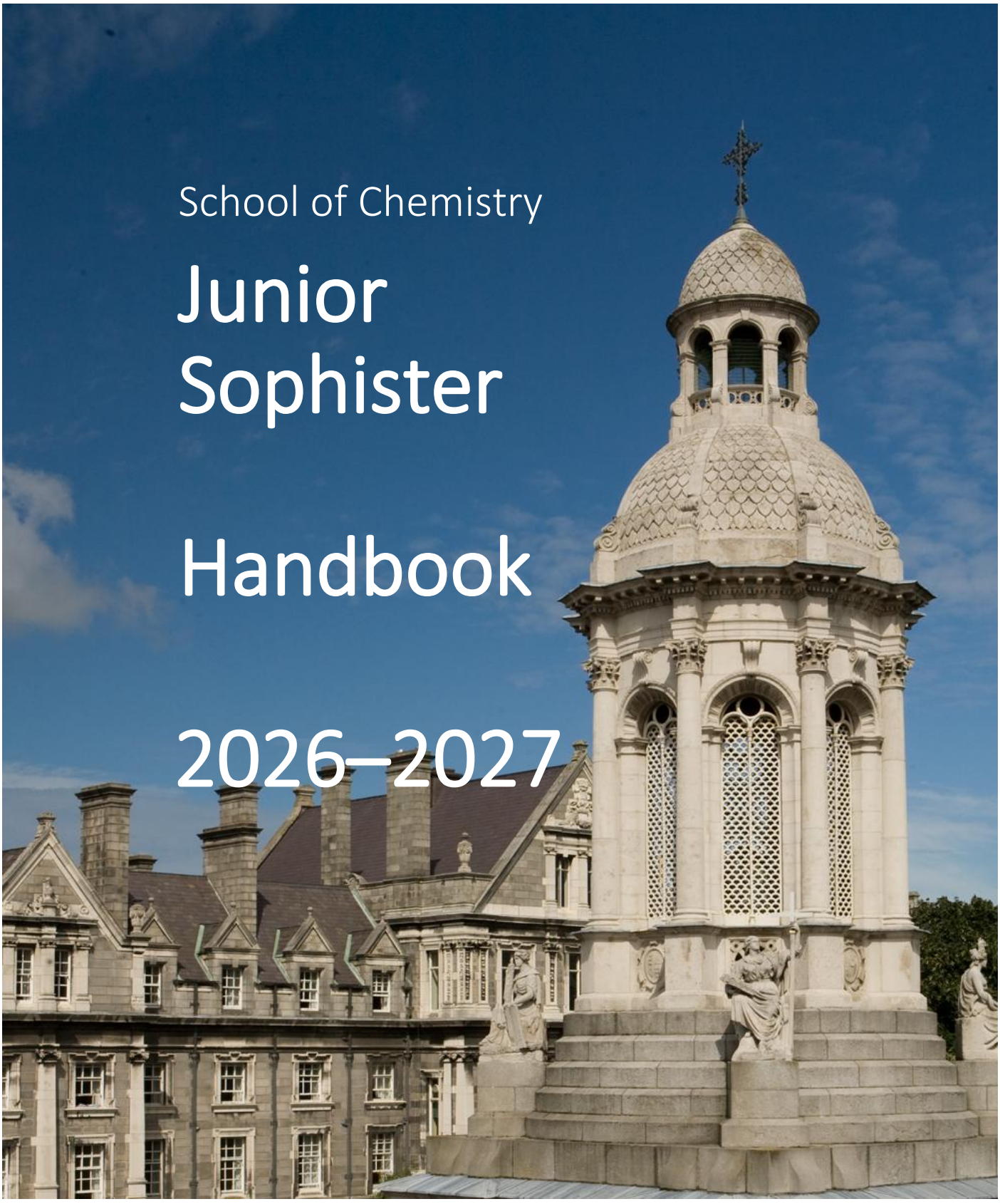

School of Chemistry

Junior Sophister Handbook

2026–2027

Contents

1 GENERAL COURSE INFORMATION

1.1 Introduction

Together with the Associate Dean of Undergraduate Science Education I, as Course Director of the Chemical Sciences, wish all of the soon-to-be Sophister students well in the final two years of their degree. This handbook reflects the structure of the Junior Sophister year in all five of the Moderatorships available within the Chemical Sciences course. These five are the **Chemistry** Moderatorship, the **Medicinal Chemistry** Moderatorship, the **Chemistry with Molecular Modelling** Moderatorship, the **Chemistry with Biosciences** Moderatorship and the **Nanoscience** Moderatorship. The course structures, core modules, practical elements, progression, and the choices available (Junior Sophister Open, Junior Sophister Trinity Elective) are listed in this handbook.

Specifically, there are opportunities during the final two years of each Moderatorship to tailor your degree through your choices within the Junior Sophister year (by your selection of Junior Sophister Open modules and Trinity Electives); your preference for your Senior Sophister capstone project, and your selection from among the Senior Sophister Optional modules. Rest assured that whatever your pathway and whatever the Moderatorship ultimately chosen, each of our chemistry degrees offers you a wide range of transferable skills that will be of high value in research, industry or business.

Best wishes to all,

Prof. Mike Southern
Director of Teaching and Learning, Undergraduate
School of Chemistry

1.2 Junior Sophister Website:

Junior Sophister - School of Chemistry - Trinity College Dublin (tcd.ie)

1.3 Emergency Procedure

In the event of an emergency, dial Security Services on extension **1999**.

Security Services provide a 24-hour service to the college community, 365 days a year. They are the liaison to the Fire, Garda and Ambulance services and all staff and students are advised to always telephone extension 1999 (+353 1 896 1999) in case of an emergency.

Should you require any emergency or rescue services on campus, you must contact Security Services. This includes chemical spills, personal injury or first-aid assistance. It is recommended that all students save at least one ICE (in case of emergency) phone number in their mobile phones.

1.4 Contact Details

Staff Name	Role/Title	E-mail	Phone (+353 1-)
Prof. Graeme Watson	CMM Director and Head of School	graeme.w.watson@tcd.ie	896 1357/1423
Prof. Mike Southern	MedChem Director and Director of Teaching and Learning (DTLUG)	southerj@tcd.ie	896 3411
Prof. Colm Delaney	Associate DTLUG	cdelane5@tcd.ie	896 1776
Prof. Peter Dunne	JS Year Coordinator	p.w.dunne@tcd.ie	896 4449
Prof. Joanna McGouran	Chemistry with Biosciences Director	jmcgoura@tcd.ie	896 1422
Prof. Chris Batchelor-McAuley	Nanoscience Director	chris.mcauley@tcd.ie	896 4935
Prof. Richard Hobbs	International Coordinator	hobbsr@tcd.ie	896 3035
Dr. Sinéad Boyce	School Manager	sboyce@tcd.ie	896 4587
Ms. AnneMarie Farrell	Administrative Officer	farrea25@tcd.ie	896 1726
Mr. Ben Power	Executive Officer	powerbe@tcd.ie	896 2040

1.5 Key Locations

Formal chemistry teaching in TCD commenced in August 1711 as part of the new School of Medicine. The Cocker laboratories provide facilities for the teaching of preparative inorganic and organic chemistry. The Sami Nasr Institute for Advanced Materials (SNIAM) building provides ca. 1500 m^2 of accommodation for the School of Chemistry. This includes a Physical Chemistry teaching laboratory and six research laboratories that house ca. 40 researchers. This institute also houses the School of Physics. Computational Chemistry research is housed in the Lloyd Institute on a multidisciplinary computational-science floor comprising researchers from Mathematics, Physics, Chemistry and High Performance Computing. In addition, chemists play an important role in interdisciplinary research taking place in two of TCD's newer research

institutes: (i) The Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN) and (ii) the Trinity Biomedical Sciences Institute (TBSI).

The majority of chemistry lectures will be held in the School of Chemistry building in either the Large Lecture Theatre (CHLLT) or the Science Lecture Theatre (CHSCLT). Additional classes may be held in the Senior Sophister Room (SSR) or New Seminar Room (NSR), also in the Chemistry building.

Practical laboratory sessions will take place in either the Cocker Laboratory in the Hamilton Buildings, East End 4-5 (opposite the Science Course Office), or the Physical Chemistry Laboratory in the SNIAM building.

Workshops may also be held online through Blackboard Collaborate or similar.

All venues will be clearly indicated on your my.tcd.ie timetable.

Room	**MyTCD Code**	**Location**
School Office	-	Chemistry Building (First Floor)
Large Lecture Theatre	CHLLT	Chemistry Building (Ground Floor)
Science Lecture Theatre	CHSCLT	Chemistry Building (First Floor)
New Seminar Room	CHEM_SEM	Chemistry Building (First Floor)
Senior Sophister Room	CHEM_SS_RM	Chemistry Building (First Floor extension)
Computer Lab	CHEMCOMP	Chemistry Building (Second Floor)
Cocker Lab	CHADLAB/East End 4	Hamilton Buildings, East End 4-5
Physical Chemistry Lab	TEACHLAB	SNIAM Building (Second Floor)
Nanoscience Lab	SNIAM_LAB4	SNIAM Building (Ground Floor

References/Sources:

Interactive College Map

Blackboard

Academic Registry

1.6 Key Dates

***JS Safety Lecture and Workshop**	Monday 14 and Wednesday 16 September 2026
Study/Review Week Semester 1:	Monday 26 October to Friday 30 October 2026
Christmas Period - College closed:	24 December 2026 to 3 January 2027 inclusive
Study/Review Week Semester 2:	Monday 1 March to Friday 5 March 2027
Formal Assessment weeks	
Semester 1 examinations:	Friday 11 to Tuesday 22 December 2026
Semester 2 examinations:	Monday 19 April to Friday 30 May 2027

*Attendance at the safety workshop is compulsory for all JS students as advised previously.

Reference/Source:

Academic Year Structure

1.7 Timetable

Your timetable is available through my.tcd.ie.

Reference/Source:

my.tcd.ie

2 SCHOLARSHIPS AND PRIZES

2.1 Prizes, Medals and Other Scholarships

2.1.1 The Mary Carson Book Prize in Chemistry

This prize was established in 2023 in memory of Dr Mary Carson, who was one of the first female academics in the School of Chemistry and had a life-long involvement with the Trinity second-hand book sale. The prize is awarded annually on the recommendation of the Head of the School of Chemistry to the Junior Sophister chemical sciences student with the highest combined mark in chemistry exams. Value, €500.

2.1.2 **Dr. George A. Lonergan Prize**

This prize is awarded annually to the student who gives the best performance in the Junior Sophister year, provided that sufficient merit is shown and the student has not been awarded another JS prize. Value, €381.

2.1.3 **Brian McMurry Prize**

This prize was established in 2009 by the friends of Dr Brian McMurry, Professor of Organic Chemistry, on his retirement. It is awarded each year to the Junior Sophister candidate from outside the European Union who is a student of the natural sciences and who obtains the highest overall marks in the annual examinations. Value, €130.

3 ACADEMIC WRITING

3.1 Academic Integrity and Referencing Guide

In Trinity College Dublin, we commit ourselves as staff and students to acting responsibly and ethically, embracing integrity in all our actions and interactions as members of the College community. Understanding that integrity requires honesty, transparency and accountability, we agree to:

- Strive to do what we say we will, ensuring that we are aware of our commitments and responsibilities in order to fulfil them, and abiding by College and other relevant policies and the highest standards of conduct.
- Give credit where credit is due, recognizing and acknowledging the contributions and achievements of others in scholarship, teaching, research and service.
- Tell the truth, as a community and as individuals, speaking out and listening even when it is difficult, naming problems and honestly acknowledging mistakes.
- Hold ourselves and others to account for the things for which we are each responsible.
- Use resources for the purposes for which they are intended and be above reproach in financial dealings.
- Deal fairly, consistently and transparently with others.

It is clearly understood that all members of the academic community use and build on the work and ideas of others. However, it is essential that we do so with integrity, in an open and explicit manner, and with due acknowledgement.

Any action or attempted action that undermines academic integrity and may result in an unfair academic advantage or disadvantage for any member of the academic community or wider society may be considered as academic misconduct. Examples of academic misconduct include, but are not limited to:

(i) plagiarism - presenting work/ideas taken from other sources without proper acknowledgement. Submitting work as one's own for assessment or examination, which has been done in whole or in part by someone else, or submitting work which has been created using artificial intelligence tools, where this has not been expressly permitted;

(ii) self-plagiarism - recycling or borrowing content from the author's own previous submitted work without citation and submitting it either for an assignment or an examination;

(iii) collusion - undisclosed collaboration of two or more people on an assignment or task, or examination, which is supposed to be completed individually;

(iv) falsification/fabrication;

(v) exam cheating - action or behaviour that violates examination rules in an attempt to give one learner an unfair advantage over another;

(vi) fraud/impersonation - actions that are intended to deceive for unfair advantage by violating academic regulations. Using intentional deception to gain academic credit;

(vii) contract cheating - form of academic misconduct in which a person uses an undeclared and/or unauthorised third party to assist them to produce work for academic credit or progression, whether or not payment or other favour is involved. Contract cheating is any behaviour whereby a learner arranges to have another person or entity ('the provider') complete (in whole or in part) any assessment (e.g. exam, test, quiz, assignment, paper, project, problems) for the learner. If the provider is also a student, both students are in violation.

Further examples of the above available at https://www.tcd.ie/academic-affairs/academic-policies/academic-integrity/.

3.2 Guidance on the use of AI and Generative-AI in College

The advent of commonly available artificial intelligence tools are disruptive in both positive and negative ways. Before using them in your studies it is important that you familiarise yourself with College policies on its use. Unless otherwise instructed for particular modules or assessments, the default expectation would be that you do not submit AI generated content as an attempt at an assessment. Below is some basic overview of the College policy on AI and GenAI. This has been taken from the more detailed policy which is informative and wide ranging. You are expected to have read and familiarised yourself with this policy.

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

Artificial intelligence is generally understood to be a set of technologies that enable computers to perform a variety of functions usually perceived as requiring human intelligence – for example, understanding speech, recognising objects in images, composing written answers and problem reasoning. A more formal definition of an AI system from the European Union AI Act (2024) is:

...a machine-based system designed to operate with varying levels of autonomy and that may exhibit adaptiveness after deployment and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments[.] (EU AI Act 2024)

Generative AI is the sub-area of AI, involving AI systems which generate content — for example, human dialogue, speech, images and video. GenAI systems are capable of generating such content based on a user's request or instruction. More formally, GenAI is defined by UNESCO as "an artificial intelligence (AI) technology that automatically generates content in response to prompts written in natural-language conversational interfaces" (UNESCO 2023).

As Ireland's leading university and as a world leader in AI research, Trinity recognises that AI and GenAI offer new opportunities for teaching, learning, assessment and research. We also recognise that these technologies present challenges and risks, including to academic integrity, ethics, privacy, impartiality, intellectual property and sustainability.

3.2.1 AI and GenAI in The School of Chemistry

Students must compose laboratory reports and assignments themselves. The reports/assignments must be an original individual intellectual effort. Students take sole responsibility for the accuracy of the content of the reports. Staff will assess the reports for originality, and additional or alternative forms of assessment may be used to validate the originality of reports.

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 plagiarism, which is defined as academic misconduct in accordance with College Academic Integrity Policy.

Link: https://www.tcd.ie/media/tcd/academic-practice/pdfs/college-statement-on-genai.pdf

The TCD statement on Artificial Intelligence and Generative AI in Teaching, Learning, assessment & Research can be found here:

https://www.tcd.ie/media/tcd/academic-affairs/pdfs/College_Statement_on_GenAI_v2_2026.pdf

TCD Guidelines on Academic Integrity can be found at this link:

https://www.tcd.ie/academic-affairs/academic-policies-procedures-and-regulations/

When submitting work for assessment, students will need to state and sign a declaration that they and have read and understood College rules on plagiarism *via* use of the Coversheet Declaration listed below.

Reference/Source

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

https://www.tcd.ie/academic-affairs/academic-policies/academic-integrity/statement-on-academic-integrity/

https://www.tcd.ie/media/tcd/about/policies/pdfs/academic/Academic-Integrity-Policy.pdf

https://libguides.tcd.ie/academic-integrity

Coversheet Declaration

4 TEACHING AND LEARNING

4.1 Programme Architecture

The School of Chemistry currently offers five QQI-NFQ Level-8 moderatorships, namely Chemistry (Chem), Medicinal Chemistry (MedChem), Chemistry with Molecular Modelling (CMM), Chemistry with Biosciences (CB), and Nanoscience (N), which is a shared course between the Schools of Physics and Chemistry. Incoming JF students enter through a common pathway, TR061, Chemical Sciences and select their moderatorship in their Senior Fresh year.

4.1.1 Staff, Research and Facilities

The School currently has 25 academic staff and 14 technical staff. The School has an active research programme, with approximately 100 postgraduate students and postdoctoral researchers. They study a wide range of chemistry subjects in fields such as organic, inorganic, organometallic, physical, theoretical, medicinal, analytical, material, polymer, environmental, and supramolecular chemistry. Research income is earned from national, international and commercial sources and the School has held grants from all relevant research programmes funded by the EU.

The College also fosters an interdisciplinary approach to research, with members of the School having strong links with colleagues in the physical, medical, technological and biological sciences both within College, nationally and internationally.

The School is well equipped for its research activities, having Bruker 600 and 400 MHz NMR spectrometers and access to an Agilent 400 MHz high-field multi-nuclear NMR spectrometer, FTIR, dispersive IR and UV-Vis spectrometers, high performance liquid chromatography (HPLC) and gas chromatography (GC) equipment, a Bruker SMART Apex Kappa Duo, Bruker D8 Quest ECO single crystal and a Bruker D2 Phaser powder x-ray diffractometers, a Micromass LCTTM (TOF) mass spectrometer, thermogravimetric analysis and differential scanning calorimetry equipment, dynamic light scattering, several spectrofluorimeters for steady-state and time-resolved fluorescence measurements, circular and linear dichroism, and a large range of wave generators and potentiostats for cyclic voltammetry.

4.1.2 Lectures

Lectures should begin on the hour and end 50 minutes later. Timetables will be published through the portal my.tcd.ie and should be checked regularly for changes to the original schedule. Module descriptors and learning outcomes for your modules are available on Blackboard. Attendance at lectures may be recorded. Lecture notes/quizzes will be provided through Blackboard (https://tcd.blackboard.com/webapps/login/) and details related to fees,

assessment, exam timetables etc. can be found on the Academic Registry's website at https://www.tcd.ie/academicregistry/.

4.1.3 Description of the Year

JS modules are delivered in both semester 1 and semester 2 and they are assessed via a combination of in-course assessment, practical work (with associated reports) and end of semester summative assessments in the form of written examinations. All written examinations are carried out during the assessment week at the end of the corresponding semester. Students failing a JS module are reassessed during the reassessment period or in the next assessment period for the module in the case of deferred exams. **NB: Reassessment marks will be capped at 40% for Chem/CMM/MedChem/ChemBio students in order for moderatorships to fulfil Royal Society of Chemistry (RSC) accreditation criteria. Nanoscience reassessment will be capped at 60% as dictated by the accrediting body, the Institute of Physics.** Reassessment capping does not apply to deferred 1st attempts at assessment.

All JS modules build upon the fundamental principles covered in the Fresh years and include more specialised topics relevant to the moderatorships. The students that perform best during their JS and subsequent years have an excellent understanding of the chemistry from the first two years. In the JS year, students must take a total of 40 ECTS Core Credits in chemistry; to complete their year requirement of 60 ECTS, they must select 20 ECTS from Open Modules and Trinity Electives (with a minimum of 5 ECTS TE and a maximum of 10 ECTS TE). Note that students are required to undertake a Trinity Elective in the first semester with the exception of Nanoscience students who must complete their Trinity Elective in the second semester.

Laboratory practical work is assessed in-course. **Attendance** at chemistry practical classes is recorded and compulsory for students. Unauthorized late submissions of coursework will result in a 10% reduction in marks for the first 24-hour delay and a 5% reduction per working day thereafter. At the end of teaching term students who have not satisfied attendance regulations may be reported as non-satisfactory for that term. Students whose attendance is reported as non-satisfactory may be refused permission to take their semester one or semester two examinations and may be required to repeat the year. Absence forms are available at the JS page of the School website: (https://chemistry.tcd.ie/Study/current_students/undergraduate/JS/index.php).

Non-submitted/failed reports will have to be reassessed. They will all have to be submitted during the summer and the student will have to undergo an in-depth *viva voce* examination for each failed module.

Mandatory Laboratory Safety Workshop: In order to reinforce and extend a student's laboratory skills in Chemistry, rising Junior Sophister students **are required** to attend a workshop on Safety, which is held at the beginning of Semester 1. Attendance at all workshops **is compulsory**.

4.1.4 Examinations

An overall pass mark of 40% is required to proceed to the Senior Sophister year. Students who successfully complete their JS year may opt to leave with a level-7 ordinary B.A. (B.A.(Ord.)). Full details of the Junior Sophister Science examination regulations may be found in the Appendices of the TR061 Sophister Course Booklet. Past examination papers are available from the Academic Registry's website (https://www.tcd.ie/academicregistry/exams/past-papers/annual/) and can be used to familiarize yourself with the structure of examination papers. The JS Chemistry mark contributes to **30%** of the final Moderatorship degree mark.

4.1.5 Feedback and Evaluation

The courses offered by the School benefit from student feedback. Rather than waiting until the end of a module to request online feedback, the School of Chemistry has instituted a Sophister Liaison Committee (SLC). Committee members comprise the DTLUG/Associate DTLUG, the School Convenor, JS and SS class reps, and Heads of Discipline or their representatives and the meetings are minuted. Class reps should collate feedback from their fellow students to bring to the meetings, which takes place at least once per semester.

4.1.6 Trinity Electives

(https://www.tcd.ie/trinity-electives/)

The JS year consists of lectures, tutorials and practicals delivered in modules, as listed below. Within the Junior Sophister year in Chemistry there are 40 credits of Core modules, with the remaining 20 credits comprising either Open or Elective modules. **All students, with the exception of Nanoscience, are required to take a Trinity Elective in the first semester; Nanoscience students take a TE in the second semester.**

Trinity Electives are a unique feature of your Trinity Education. They are stand-alone, College-wide 5-credit modules. They cover a broad range of topics in the arts, humanities, sciences, health and social science, and technology. They are designed to allow students to study topics outside of their core discipline and thus to develop breadth within their education. Chemical Sciences students take a minimum of one and a maximum of two Trinity Electives in the Junior Sophister year. Depending on your moderatorship, you will choose a combination of Trinity Electives and Open Modules as described in this handbook.

4.1.6.1 Choosing your Trinity Elective

The choice of Trinity Elective is student-driven. Almost all Trinity Electives are open to all students, with exceptions outlined on the Trinity Electives webpage (e.g., From Planets to the Cosmos is not available to TR063 Physical Sciences students, for obvious reasons).

Selection will be made through online enrolment, which will open between the end of July and first week of August, after publication of results and allocation of moderatorships. You will be asked to list your choice(s) of Trinity Elective in order of preference. Places are allocated according to a computer algorithm and are based on student preference and places available in the Trinity Elective. Exam results are not factored into this algorithm.

The Trinity Electives website provides full details of each of the Trinity Electives. A list of the Trinity Electives can be found at https://www.tcd.ie/trinity-electives/
You will need to think carefully about your choice of Trinity Elective as taking an elective in Semester 2 will affect the Open Modules that you can take – refer carefully to the tables in this handbook.
May: Results are published.
June: Moderatorships are allocated.
Students apply for Trinity Electives through an online portal on the Trinity Electives website (https://www.tcd.ie/trinity-electives/apply/). Trinity Electives are allocated by computer algorithm.
Students are informed of their Trinity Elective allocation.
Following this process, students will select their Open Modules.

4.1.7 Junior Sophister Examination Information

Modules are assessed by continuous assessment and/or by examination. The Junior Sophister year carries a total of 60 credits. The distribution of marks between papers and practical work at the Sophister examinations can be found in the module descriptions.

Junior Sophister Practicals will be assessed by continuous assessment. Attendance is mandatory in weeks 30-31 as detailed in the student timetable. Details of practical reporting requirements, related deadlines and the assessment process will be provided in the lab manual. The distribution of marks between papers and practical work at the Sophister examinations can be found in the module descriptions.

Practical modules (or components of modules) have a **non-compensatable 40% pass mark** i.e. a mark of less than 40% in a practical module means that the student fails the year.

4.1.7.1 Calculation of Moderatorship results

The final moderatorship results are calculated as a weighted average of the overall result for the Junior and Senior Sophister examination results, as follows:
Junior Sophister 30%, Senior Sophister 70%.

4.1.7.2 Reassessment Regulations

Reassessment is available in all years.

The right to reassessment of a module will be automatic for those students who receive a fail grade.

In order for moderatorships to fulfil Royal Society of Chemistry (RSC) accreditation criteria, reassessment marks must be capped at **40%**. This applies to the chemistry based Moderatorships**, Chemistry, Medicinal Chemistry, Chemistry with Biosciences and Chemistry with Molecular Modelling**.

The **Nanoscience** moderatorship is accredited by the Institute of Physics and therefore reassessments are capped at **60%**.

Students may not present for reassessment in a module they have passed.

4.1.7.3 Repeat-Year regulations

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). 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 (see Calendar, https://www.tcd.ie/media/tcd/calendar/undergraduate-studies/general-regulations-and-information.pdf).

The option to repeat a year in an 'off-books' basis will be at the discretion of the Senior Lecturer.

4.1.7.4 Seminars and Special Lectures

You are expected to attend the School's research seminars, which are held at noon on Thursdays during both semesters. In some instances where attendance at seminars would prevent any scheduled break during the day attendance will not be required. Talks will be advertised on the School website at http://chemistry.tcd.ie/. During the year, lectures on

various topics will be arranged by the School, the Werner Chemical Society, the Royal Society of Chemistry and/or the Institute of Chemistry of Ireland. You will find many of them interesting and valuable. Attendance at these lectures is recorded.

4.2 Preparation for the Senior Sophister Year

JS year is the time to investigate your options regarding where to carry out your final-year capstone project. Semester 1 of the Senior Sophister year is spent working full-time on a research project in TCD, or at a university abroad. The School encourages interested students to go abroad if they so wish. Those achieving a grade of II-1 or higher in their JS year will have automatic approval to go abroad but for those with lower grades, the request will be reviewed on a case-by-case basis. Arrangements for projects abroad are made in the JS year and will be coordinated by Prof. Richard Hobbs.

5 COURSE STRUCTURES

5.1 Junior Sophister Chemistry/MedChem/CMM Course Structure Diagram

For all three Moderatorships, the JS year consists of lectures, tutorials and practicals delivered in modules, as listed below. Within the Junior Sophister year in Chemistry there are 40 credits of Core modules, with the remaining 20 credits comprising either Open or Trinity Elective modules. **All students except Nanoscience students are required to take a Trinity Elective in the first semester. Nanoscience students must complete their Trinity Elective in the second semester**

Mandatory Courses: In order to reinforce and extend a student's laboratory skills in Chemistry, rising Junior Sophister students **are required** to attend a lecture and workshop on Safety, which is held in the first teaching week of Michaelmas Term. Attendance at all workshops **is compulsory**.

5.1.1 Chemistry

Course Advisor: Prof. Peter Dunne
The Chemistry moderatorship affords access to a wide range of careers in industry, academia and the professions. By choice of practical project and of lecture options in the final year, a student may specialise in Organic, Physical or Inorganic Chemistry.

5.1.2 Chemistry with Molecular Modelling

Course Advisor: Prof Graeme Watson
A degree in Chemistry with Molecular Modelling allows access to a wide range of careers in industry, academia and the professions.

5.1.3 Medicinal Chemistry

Course Advisor: Prof. John Southern
Medicinal Chemistry is the area of chemistry that bridges chemistry, pharmacy and medicine and specialises in drug discovery, development and translational chemistry. The specialisation really begins in the Sophister years, building upon the fundamental principles covered in the Freshman years. From a chemistry perspective the focus is on both Organic and Medicinal Chemistry. Graduates will receive a degree in Medicinal Chemistry, which affords access to a wide range of careers in industry, academia and the professions.

5.1.3.1 Assessment and Examination Procedures:

The lecture material will be examined in module examination papers taken during the examination periods. Practical work is assessed in-course. The JS Chemistry mark will contribute 30% of the final degree mark.

The Junior Sophister course structure is diagrammatically illustrated below:

<table>
<tr><th colspan="4">Junior Sophister TR061 - Chem/CMM/MedChem</th></tr>
<tr><td colspan="4">40 ECTS Core</td></tr>
<tr><td colspan="2">Semester 1</td><td colspan="2">Semester 2</td></tr>
<tr><td>CHU33209 (Org Lab; 5 ECTS)</td><td>CHU33409 (ACM Workshop; 5 ECTS)</td><td>CHU33109 (Inorg Lab; 5 ECTS)</td><td>CHU33309 (PhysChem Lab; 5 ECTS)</td></tr>
<tr><td>CHU33405 (5 ECTS) Interdisciplinary Methods</td><td>CHU33207 (5 ECTS) Organic Chemistry</td><td>CHU33101 (5 ECTS) Advanced Inorganic Chemistry Core 1</td><td></td></tr>
<tr><td>CHU33303 (5 ECTS) Physical Chemistry</td><td></td><td></td><td></td></tr>
<tr><td colspan="4">20 ECTS Open Modules/Elective</td></tr>
<tr><td colspan="2">Elective 1 (5 ECTS)
Mandatory</td><td colspan="2">Elective 2 (5 ECTS)
Optional</td></tr>
<tr><td colspan="2" rowspan="2"></td><td colspan="2">Open Modules (5 ECTS each)</td></tr>
<tr><td colspan="2">Organic*/Inorganic/Physical**/MedChem*** Options
* Organic option is compulsory for MedChem
**Physical option is compulsory for CMM
***Only available as an option for the MedChem and ChemBio moderatorship</td></tr>
</table>

Details for each individual moderatorship and a brief descriptor for each module are outlined in the next section.

5.1.4 Chemistry with Biosciences

Course Advisor: Prof. Joanna McGouran

Chemistry with Biosciences is the area of chemistry that bridges chemistry, biochemistry, immunology and biosciences while maintaining a solid foundation in chemistry. The specialisation really begins in the Sophister years, expanding upon the biological topics covered in the Freshman years alongside core and optional chemistry modules. Graduates will receive a degree in Chemistry with Biosciences, which affords access to a wide range of careers in industry, academia and the professions. This degree is particularly suited to interdisciplinary careers such as medical writing, patent law and biopharma research and manufacturing.

The JS year consists of lectures, tutorials and practical laboratory sessions delivered in modules, as listed below. Within the Junior Sophister year in Chemistry there are 40 credits of Core Chemistry modules, 15 credits of Core Bioscience modules with the remaining 10 credits being a choice between CHU33102 and CHU33442. **All students are required to take a Trinity Elective in the first semester.**

Mandatory Courses: In order to reinforce and extend a student's laboratory skills in Chemistry, rising Junior Sophister students **are required** to attend a day-long workshop on Safety, which is held in the first teaching week of Michaelmas Term. Attendance at all workshops **is compulsory**.

5.1.4.1 *Assessment and Examination Procedures:*

The lecture material will be examined in module examination papers taken during the examination periods. Practical work is assessed in-course. The JS Chemistry mark will contribute towards 30% of the final degree mark.

The Junior Sophister course structure is diagrammatically illustrated below:

Junior Sophister TR061 – Chemistry with Biosciences			
40 ECTS Core			
Semester 1		**Semester 2**	
CHU33209 (Org Lab; 5 ECTS)	CHU33409 (ACM Workshop; 5 ECTS)	CHU33509 (Inorg & Phys Labs; 5 ECTS)	BYU33C02 (10 ECTS) From Organisms to Ecosystems
CHU33403 (5ECTS) Interdisciplinary Methods	CHU33207 (5 ECTS) Organic Chemistry I	CHU33101 (5 ECTS) Advanced Inorganic Chemistry Core 1	BYU33207 (5ECTS) Genomes, Disease and Diversity Lect & Lab
CHU33303 (5ECTS) Physical Chemistry			
5 ECTS Electives/Options		**5 ECTS Open**	
Elective 1		Chem option from JS*	

*Option availability subject to timetabling

5.1.5 Nanoscience

Course Advisor: Prof. Chris Batchelor-McAuley

Nanoscience is a moderatorship taught jointly by the Schools of Physics and Chemistry. Building on the foundation courses taken in the Fresh years, students follow in-depth courses across the spectrum of modern physics, physical chemistry, materials science and nanoscience while reflecting the strength of Trinity's research expertise in these areas.

The Junior Sophister year consists of lectures, tutorials and practicals delivered in modules, as listed below. Within the Junior Sophister year in Nanoscience there are 40 credits of Core modules, with the remaining 20 credits comprising either Open or Elective modules. **All Nanoscience students are required to take a Trinity Elective in the second semester of their Junior Sophister year.** Students receive training in communication skills within the practical modules.

5.1.5.1 Safety:

To reinforce and extend laboratory skills rising Junior Sophister students are required to attend a Chemical and Laboratory Safety session to be held in before beginning their chemistry laboratory classes in semester 2. Attendance at this session is compulsory.

5.1.5.2 Core Modules:

The Core modules, one Trinity Elective and two Open modules specified below are mandatory. In the second semester, students have the choice of taking one of the specified Chemistry or Physics Open modules**.**

5.1.5.3 Assessment and Examination Procedures:

Modules may be assessed by end-of-semester examination and/or continuous assessment. Further information relating to the assessed components and composition of written papers will be given in the Junior Sophister Nanoscience Booklets issued to rising Junior Sophisters. Examined modules may include continuous assessment components. Junior Sophister marks contribute to 30% of the final degree Moderatorship mark.
Reassessment marks will be capped at 60% for all modules taken by Nanoscience students, this is a stipulation of the accreditation of the course by the IoP

The Junior Sophister course structure is diagrammatically illustrated below:

<table>
<tr><th colspan="3">Junior Sophister TR061 – NANOSCIENCE</th></tr>
<tr><th colspan="3">40 Credits core + 20 Credits Open modules or Trinity Elective modules</th></tr>
<tr><td rowspan="5">Core Modules (40 credits)</td><td>Semester 1: Core</td><td>Semester 2: Core</td></tr>
<tr><td>PYU33P01: Quantum Mechanics I (5 credits)</td><td>CHU33101: Advanced Inorganic Chemistry Core 1 (5 credits)</td></tr>
<tr><td>CHU33405: Analytical and Computational Methods (5 credits)</td><td>CHU33307: Solid State Materials and Modelling (5 credits)</td></tr>
<tr><td colspan="2">PYU33NP3: Nanoscience Physics Laboratory (10 credits)</td></tr>
<tr><td>CHU33409: Analytical and Computational Methods Workshops (5 credits)</td><td>CHU33603: Practical in Physical Chemistry and Nanoscience (5 credits)</td></tr>
<tr><td rowspan="4">Open or Trinity Elective Modules (20 credits)</td><td>Semester 1: Open modules both core</td><td>Semester 2: Open – choose 1 of 2 and Trinity Elective</td></tr>
<tr><td>* PYU33P03: Condensed Matter I (5 credits)</td><td>PYU33P04: Semiconductor Physics (5 credits)</td></tr>
<tr><td>* PYU33P02: Electromagnetic Interactions I (5 credits)</td><td>CHU33102: Advanced Inorganic Chemistry Options 1 (5 credits)</td></tr>
<tr><td>* Indicates a mandatory selection
No Trinity Elective available in Semester 1.</td><td>Trinity Elective (Nanoscience students obliged to take a TE in S2) (5 credits)</td></tr>
</table>

A Nanoscience student must take their one required Trinity Elective in Semester 2. In Semester 2 the choice of Open module is then between PYU33P04 (Semiconductor Physics) and CHU33102 (Advanced Inorganic Chemistry Options 2).

A Nanoscience student cannot choose to take a second Trinity Elective. The requirement by College for these students for 10 Elective credits is met between the JS Trinity Elective in Semester 2 and the SF module in the History Philosophy and Ethics of Science.

5.2 Module Descriptors

Module Code	Sem	ECTS	Core	Open	Title and Description	Assessment	Reassessment (Capped at 40%**)
CHU33207	1	5	Chem CMM MedChem ChemBio	-	**Synthetic Organic Chemistry:** This module is aimed at achieving an understanding of fundamental reaction mechanisms of transition-metal-catalysed reactions, introducing the student to the different reactivities of organoheteroatom compounds and at providing the student with a grounding in the advanced selective oxidative and reductive transformations necessary to apply retrosynthetic analysis effectively.	Examination	Examination
CHU33209	1	5	Chem CMM MedChem ChemBio	-	**Practical in Organic Chemistry:**	Reports*	Reports and *viva voce*
CHU33303	1	5	Chem CMM MedChem ChemBio	-	**Quantum Mechanical Concepts in Physical Chemistry:** This module seeks to introduce the student to the fundamental aspects of quantum mechanics and the use of Schrödinger's equations to describe particle systems in chemistry.	Continuous Assessment (20%)* Examination (80%)	Continuous Assessment (20%) Examination (80%)
CHU33405	1	5	Chem CMM MedChem ChemBio Nano	-	**Analytical and Computational Methods:** This module introduces the student to instrumental methods in analytical chemistry and to modern computational tools to understand chemical structure and interpret spectroscopic results.	Examination	Examination
CHU33409	1	5	Chem CMM MedChem ChemBio Nano	-	**Analytical and Computational Methods Labs/Workshops:** This module introduces methods for data analysis and interpretation across all chemistry disciplines.	In class assessments & reports*	Reports and *viva voce*
CHU33101	2	5	Chem CMM MedChem ChemBio Nano	-	**Advanced Inorganic Chemistry Core 1:** The aim of this module is to develop an understanding of materials and nanochemistry, bioinorganic chemistry and organometallic chemistry.	Examination	Examination

Module Code	Sem	ECTS	Core	Open	Title and Description	Assessment	Reassessment (Capped at 40%**)
CHU33109	2	5	Chem CMM MedChem	-	**Practical in Inorganic Chemistry**	Reports and Posters, and *viva voce*	Reports, Posters, and *viva voce*
CHU33309	2	5	Chem CMM MedChem	-	**Practical in Physical Chemistry**	Reports, Posters, and *viva voce**	Reports, Posters, and *viva voce*
CHU33509	2	5	ChemBio	-	**Practical in Physical and Inorganic Chemistry for Chemistry with Biosciences**	Reports, Posters, and *viva voce**	Reports, Posters, and *viva voce*
CHU33603	2	5	Nano	-	**Practical in Physical and Inorganic Chemistry for Nanoscience**	Reports, Posters, and *viva voce**	Reports, Posters, and *viva voce*
CHU33102	2	5	-	Chem CMM Medchem ChemBio Nano	**Advanced Inorganic Chemistry Options 1:** The aim of this module is to develop an understanding of the chemistry of the F-block elements, inorganic photophysics and advanced inorganic materials.	Examination	Examination
CHU33205	2	5	MedChem	Chem CMM ChemBio	**Advanced Organic Transformations:** This module is aimed at achieving an advanced understanding of the reactivity of heterocyclic compounds, introducing the student to applications of molecular orbital theory for organic reactivity, and integrating physical chemistry principles into their understanding of organic chemistry reactions.	Examination	Examination
CHU33307	2	5	CMM Nano	Chem MedChem ChemBio	**Solid State Materials and Modelling:** This module introduces the student to the fundamental aspects of solid-state materials and the modelling of them. It will focus on the electronic structure and defects and how these can be used to influence the properties of materials and hence create functional materials.	Continuous Assessment (50%)* Examination (50%)	Examination

Module Code	Sem	ECTS	Core	Open	Title and Description	Assessment	Reassessment (Capped at 40%**)
CHU33442	2	5	MedChem	ChemBio	**Drug Design and Development:** This module is aimed at introducing the student to drug design and development with special focus on antivirals, antibiotics and therapeutics in cancer treatment. The student will also be introduced to the principles of QSAR in drug design.	Continuous Assessment (8.3%)* Examination (91.7%)	Continuous Assessment (8.3%)* Examination (91.7%)
BYU33207	2	5	ChemBio	-	**Genomes, Disease and Diversity:** Through lectures, and practicals (practice in techniques and problem-solving) we will provide students with a broad overview of the genomics and the impact of new approaches across the biosciences. We will introduce the basics of new technologies and show the application of these to the study of a) inherited traits, including Mendelian and complex human diseases; b) the non-inherited somatic genome with particular focus on cancer; c) human kinship and origins; d) the microbiome; and e) the genomics of ecology.	Continuous Assessment (30%) Examination (70%)	Examination
BYU33C02	2	10	ChemBio	-	**From Organisms to Ecosystems:** Organisms to Ecosystems I aims to introduce students to the biology of individuals, species, populations and ecosystems, and explore how humans interact with other living organisms. It covers the developmental biology of organisms, their physiology, brain function and the evolutionary and ecological responses of organisms to their environment. Topics incorporate the diversity of life and its biological development, interactions between organisms and their environment, the biological context of climate change, human impacts on the environment, future food sustainability, urban ecology, ecosystem services and the value and conservation of biodiversity. Topics are arranged in three sections: 1) Multicellularity and Development, Physiology, Behavior and Neuroscience, 2) Evolution: Adaptation, Populations and Biodiversity, and 3) Ecology and Environment.	Continuous Assessment (20%) Examination (80%)	Examination
PYU33P01	1	5	Nano	-	**Quantum Mechanics:** This module covers solution of the Schrödinger Equation in specific topics, such as angular momentum and the hydrogen atom.	Examination	Examination

Module Code	Sem	ECTS	Core	Open	Title and Description	Assessment	Reassessment (Capped at 40%**)
PYU33P02	1	5	Nano	-	**Electromagnetic Interactions:** This module covers the fundamentals of electromagnetic theory together with quantum optics and lasers. (This module is mandatory for Institute of Physics accreditation.)	Examination	Examination
PYU33P03	2	5	Nano	-	**Condensed Matter:** This module introduces condensed matter concepts such as crystal structure and thermal and electronic properties of matter.	Examination	Examination
PYU33NP3	1 & 2	10	Nano	-	**Practical in Physics**	Reports, Posters, and *viva voce*	Reports, Posters, and *viva voce*
PYU33P04†	2	5		Nano	**Semiconductor Physics:** This module covers the physics of semiconductors and the construction, fabrication and application of semiconductor devices.	Examination	Examination
Electives‡	1/2	5	All		**See description below**		

* Junior Sophister Practicals will be assessed by continuous assessment. **Attendance** at chemistry practical classes is recorded and compulsory. Unauthorized late submissions of coursework will result in a 10% reduction in marks for the first 24-hour delay and a 5% reduction per working day thereafter. Details of practical reporting requirements, related deadlines and the assessment process will be provided in the lab manual/Blackboard.

** Reassessment marks will be capped at 60% for all modules taken by Nanoscience students, this is a stipulation of the accreditation of the course by the Institute of Physics.

† Nanoscience students must choose between CHU33102 and PYU33P04 for their semester 2 open module.

‡ Chem/CMM/Medchem must choose an elective in Semester 1, and may choose a second elective in Semester 2. ChemBio must choose an elective in Semester 1 only. Nanoscience must choose an elective in Semester 2 only.

5.3 Calendar Regulations

Modules are assessed by continuous assessment and/or by examination. The Junior Sophister year carries a total of 60 credits. The distribution of marks between papers and practical work at the Sophister examinations will be published by individual schools or departments/disciplines.

5.3.1 Examination Regulations – Junior Sophister

Examination timetables will be published on the portal my.tcd.ie at least four weeks prior to examinations taking place.

The College reserves the right to alter the published time and date of an examination in exceptional circumstances. Students should ensure that they are available for examinations for the duration of the relevant examination session as stated in the Almanack.

Junior Sophister students must, in the first instance, sit the end-of-semester examinations and meet the requirements of the course.

The Junior Sophister examination has a two-fold purpose. It is (a) the final examination for the Ordinary B.A. 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 B.A. degree based on their successful performance in the Junior Sophister examination.

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

This following extract is taken from the general regulations and information section of the 2026/27 College Calendar:

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/academic-affairs/academic-regulations/-undergraduate-progression-and-awards.

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. If a student has received permission to defer an assessment(s) to the reassessment session and achieved a qualified pass grade at the first sitting, they must present for reassessment in all modules for which they obtained 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 and if the student has received permission to repeat modules while off-books. 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 Senior Lecturer/Dean of Undergraduate Studies or the University Council.

5.4 Absence from Examinations

(taken from Calendar general regulations and information)

52 Students who may be prevented from sitting an examination or examinations (or any part thereof) due to illness should seek, through their tutor, permission from the Senior Lecturer in advance of the assessment session to defer the examination(s) to the reassessment session. Students who have commenced the assessment session, and are prevented from completing the session due to illness should seek, through their tutor, permission to defer the outstanding examination(s)/assessment(s) to the reassessment session. In cases where the assessment session has commenced, requests to defer the outstanding examination(s) on medical grounds, should be submitted by the tutor to the relevant school/departmental/course office. If non-medical grounds are stated, such deferral requests should be made to the Senior Lecturer, as normal.

53 Where such permission is sought, it must be appropriately evidenced:

(a) For illness: medical certificates must state that the student is unfit to sit examinations/ complete assessments and specify the date(s) of the illness and the date(s) on which the student is not fit to sit examinations/complete assessments. Medical certificates must be submitted to the student's tutor within three days of the beginning of the period of absence from the assessment/examination.

(b) For other grave cause: appropriate evidence must be submitted to the student's tutor within three days of the beginning of the period of absence from the assessment/examination.

54 Where illness occurs during the writing of an examination paper, it should be reported immediately to the chief invigilator. The student will then be escorted to the College Health Centre. Every effort will be made to assist the student to complete the writing of the examination paper.

55 Where an examination/assessment has been completed, retrospective withdrawal will not be granted by the Senior Lecturer nor will medical certificates be accepted in explanation for poor performance

Reference/Source:

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

Academic Policies

5.5 Student Feedback and Evaluation

The courses offered by the School benefit from student feedback. Rather than waiting until the end of a module to request online feedback, the School of Chemistry has instituted a Sophister Liaison Committee (SLC). Committee members comprise the DTLUG/Associate DTLUG, the School Convenor, JS and SS class reps, and Heads of Discipline or their representatives and the meetings are minuted. Class reps should collate feedback from their fellow students to bring to the meeting, which takes place at least once per semester.