



School of Chemistry & Molecular Biosciences

Faculty of Science

BSc HONOURS IN CHEMISTRY & MOLECULAR BIOSCIENCES

Program Guide

Semester 1 2017



THE UNIVERSITY
OF QUEENSLAND
AUSTRALIA

Please note: This guide should be read in conjunction with the electronic course profile (ECP) for the course you are enrolled in.

“Every effort has been made to ensure the accuracy of information in this document at the time of publication. The authoritative source of program and course information is the UQ Courses and Programs website at www.uq.edu.au/study/. Where any conflict of information exists, the rules and associated course lists approved by the UQ Senate shall apply.”

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1. INTRODUCTION

The Chemistry Honours Director is Dr Evan Moore and all questions relating to the Chemistry Honours program should be directed to him in the first instance. If any difficulties arise that cannot be resolved by talking with your supervisor, please contact Dr Evan Moore (egmoore@uq.edu.au). It is especially important that you bring to our attention, as soon as possible, any factors that may affect your performance (e.g. health problems). In some circumstances, it may be most appropriate for you to discuss your situation with a counsellor from Student Services (<http://www.uq.edu.au/student-services>), who can then communicate to the Director only such information as is required to allow appropriate academic decisions to be made.

2. COMMENCEMENT OF WORK: ORIENTATION AND TRAINING COURSES

Formally the Honours year begins on Monday 6 February and you should have your project assigned and be ready to commence work. There are a number of introductory courses in the first couple of weeks where each student will be given information which will be very important to them throughout the year. Attendance is compulsory at each of these courses.

2.1 School Safety Induction

Wednesday 8 February, 9.00am – 12:00pm in Room 228, Molecular Biosciences Building (76), followed by a facilities overview and lunch, 12:00pm – 1:00pm. The School of Chemistry & Molecular Biosciences (SCMB) Safety Induction for Semester 1 students will be held at this time.

This induction is compulsory for new Honours students who will be working in Building 68 (Chemistry) or Building 76 (Molecular Biosciences). Honours students working entirely off campus or based in other schools or centres (e.g. IMB or AIBN) must attend a safety induction for that school or centre. A program for the day is set out at the end of this guide.

2.2 Library Workshops

Thursday 9th February 9.30am – 11.30am Library ezone, Dorothy Hill Engineering & Sciences Library (Bld 50) **AND** Friday 10 February 9.30am – 11.30am **OR** 1.30-3.30 in Library ezone 1 and 2, Biological Sciences Library: Essential library skills for Honours students; effective literature searching for the literature review and EndNote (reference management). Even if you have prior experience with some of these topics, it is important that you are up to date with the latest services that are available (databases, software etc.). You are to attend both sessions.

2.3 Occupational Health and Safety

It is a requirement that a risk assessment be carried out **prior to any procedure being undertaken in a laboratory** (e.g. synthetic work, handling of chemicals etc.). All research groups have their own Risk Assessment folders and your supervisor will provide you with the necessary information about filling in these forms. Note that in some cases, the use of particularly hazardous chemicals will require your supervisor's countersignature. The School is audited on a regular basis by various units associated with workplace health and safety and any irregularities in the Risk Assessment folders, which must always be available for inspection in every lab, may have very serious repercussions. **Ignorance is no excuse.**

3. ENROLMENT

All students enrol in **CHEM6511 – Research Project in Chemistry**, for both Semester 1 and Semester 2 2017. The 16 units (#16) of credit associated with the Honours program are a mixture of research, seminars and coursework.

The program comprises one course which has a number of assessment items, each of which are outlined in the Electronic Course Profile (ECP). Course profiles contain complete course details, deadlines and assessment information. You can view the profile for this course via mySI-net. All published profiles are accessible through the Courses and Programs website <http://www.uq.edu.au/study/>.

3.1 Contact Details

We regularly communicate vital Honours information to you and your supervisor by email so ensure that you check your email daily. **Most importantly, we only send emails to your official UQ (student) email address.** No messages will be sent to private email addresses.

3.2 Keys and Swipe Access Cards

You should discuss your needs with your supervisor in the first instance. Room keys and swipe cards for rooms in Buildings 68 and 76 may be obtained from Mr Greg Rees in 68-308 between 12 and 1pm Monday–Friday. Note that a bond of \$15 is required for the swipe card and an additional \$15 for each key. Bonds will be repaid at the end of the year when all items are returned. Access to other buildings on campus must be negotiated with the appropriate building manager.

3.3 Printing quota and facilities

The School allows a printing quota of \$14.00 for each semester of enrolment. This is the equivalent of 220 black and white pages and 30 colour pages per semester. This refers to single pages. When printing or copying double-sided, your quota will be reduced by 2 copies. Any unused quota will roll over into your second semester.

If your quota runs out, it is your responsibility to find other alternatives for printing, either on campus or privately. Some nearby choices include the libraries, the interactive Learning Centre or Print on Demand (pod). These choices come at a small cost.

The printers are activated by your student ID cards. To access your printing, or 'log-in', you will need to tap your ID card on to the sensor pad. Once you have completed your printing, touch your ID card on the sensor pad to 'log-out'. The printers are operated through a system called 'Papercut'. This means you should only use the options available to you on the printer screen. You can collect your printing from either of the Ricoh printers in the Chemistry Building (68), Level 3, room 314.

3.4 Administrative Contacts

If you have any administrative queries please contact:

Administrative Officer: Louise Nimwegen (SCMB Reception, Level 3, Chemistry Building (68)); **or Manager, Coursework Academic Administration:** Tammie Fair (SCMB Reception, Level 3, Chemistry Building (68)).

Email enquiries: honours@scmb.uq.edu.au

4. THE CHEMISTRY HONOURS PROGRAM AND ASSESSMENT

The 16 units (#16) of credit associated with the Honours program is a mixture of research, seminars and coursework. Complete course details, deadlines and assessment information can be found in the ECP.

4.1 Research Project in Chemistry (#10)

This is a year-long component and culminates in the submission of a Research Report (thesis). The research project is carried out under the supervision of a member (or members) of the academic staff. The research topic is assigned by the supervisor after consultation with the student.

You will be required to submit **one** (1) hard copy and **one** (1) electronic copy (to *Turnitin* via Blackboard) of the research report (thesis) describing the results of your project work **by 4pm Wednesday 25 October. A penalty of 10% per day will be strictly applied for late submission of your research report**, unless there are valid, **adequately documented** reasons for late submission (e.g. medical condition). All extensions must be submitted as outlined in the electronic course profile (ECP) and approved by the Honours Director. PLEASE NOTE: SUPERVISORS ARE NOT AUTHORISED TO GIVE EXTENSIONS. It is easy for students to underestimate the time required to complete a research report (several weeks usually), so students are strongly advised to wind up experimental work early enough to leave adequate time for writing.

The research report (thesis) must be **no more than 50 pages of double-spaced 12 pt text**. This limit does not include the index, reference list and appendices but does include figures. This limit will be strictly enforced. A small number of large figures, schemes or tables (but no free text) may be placed on facing pages if the student wishes, but this is not necessary. Although your supervisor is permitted to read and comment on a draft of your thesis, they must not undertake in-depth drafting. The written work must be your own. It is essential, however that your supervisor or some other senior researcher (perhaps a postdoc) reads drafts of your thesis while you are preparing it. You are not expected to know instinctively how to write such a document and this is an important learning opportunity.

YOU MUST GIVE YOUR SUPERVISOR (OR NOMINATED READER) AT LEAST ONE WEEK TO READ THE FINAL DRAFT OF YOUR THESIS. This will allow adequate time for the thesis to be read in detail, possible changes discussed with you and for you to make these changes. It would be preferable if individual chapters/sections had been read by a qualified person long before this FINAL draft is given to the supervisor. It is STRONGLY RECOMMENDED that you write your thesis as you go through the year. The experimental section and data input can be compiled on a weekly basis and should be **backed up on at least two different electronic storage facilities**.

NB: It is a mandatory requirement that the preliminary pages of the final research report are worded appropriately from the template (Research Report Declaration) shown in Appendix 1 of this Guide.

4.2 Vivas

During the week of **30 October – 3 November** each student will attend a viva (oral examination) where they will answer questions about their project and thesis. The viva will assist the thesis examiners in awarding a mark for the research report, but are not graded as a distinct assessment task. The viva will be of 20 minutes duration.

Marked research reports will be available for collection a few days after the final seminar and viva.

4.3 Seminar & Research Communication Skills in Chemistry (#2)

Each student will present a 10 minute *introductory seminar* (plus 5 minutes for questions) during the week of **5 – 9 June** outlining their proposed research report (thesis) work. This seminar will be an important opportunity to practice delivering a scientific seminar. The timing of this series of seminars will coincide (approximately) with completion of the Research Proposal (see page 6). A timetable for these seminars will be provided towards the end of the first semester.

During the week of **30 October – 3 November** each student will deliver a *research seminar* outlining their achievements. A consensus mark from academic staff members present will be determined, and this **will comprise 10% of the final grade**. The seminar will be assessed as an exercise in scientific communication. The seminar will be of 15 minutes duration with an additional 5 minutes for questions.

Attendance at the weekly Chemistry and Biological Chemistry Seminars (held most Mondays at 1pm) is **compulsory**. A requirement of this course is that each student maintains a (legible and properly annotated) seminar notebook which must be submitted for scrutiny at the same time as the research report (**25 October**). Although occasional seminar absences may be unavoidable, they must be accompanied by an apology sent to the Seminar Convenor with a valid reason for your inability to attend. Chronic absences will result in a failing mark for this course.

4.4 Research Proposal in Chemistry (#2)

This comprises a 3000 word (maximum) research proposal that **provides an introduction to** the work that you will undertake, the background to this project and why you are doing it. The word limit does NOT include references, table of contents or list of abbreviations though all three of these things are required in the document. Although this assessment component is named Research Proposal, it will in fact, consist largely of a **critical literature review** of your research area. It will probably form the basis of your introductory research report (thesis) chapter.

Although your supervisor is permitted to read and comment on a draft of your proposal, they must not undertake in-depth drafting. The written work must be your own. It is critical that your supervisor or a nominated senior researcher read a final draft of this document to provide feedback. **YOU MUST ALLOW THIS PERSON AT LEAST ONE WEEK TO READ THE FINAL DRAFT OF YOUR REVIEW**. This allows adequate time for the document to be read carefully, changes discussed and for you to make the changes. The deadline for submission of this report is **4pm Wednesday 31 May**. A penalty of 10% per day will be strictly applied for late submission. **Extensions to this due date must be approved by the Honours Director (not your supervisor)**.

The purpose of the Research Proposal is:

- to ensure that the student knows the work already done in the research area;
- to ensure that the student can assess deficiencies in the knowledge of the subject;
- to test the student's ability to read literature critically;
- to test the student's ability to organise evidence derived from other people's work; and
- to test the student's ability to write a clear, concise, readily understandable proposal in an objective manner.

The Research Proposal should consist of the following sections:

- 1. Background and significance:** This will constitute the bulk (~two thirds) of the document. It will consist of a critical and concise review of the literature in the area (i.e. past relevant research), under sub-headings, which are listed in a Table of Contents. You should clearly state the significance of the area of research to science. Headings and sub-headings may be numbered if desired. Developments in the literature are usefully followed in chronological order, but this can be varied if there is a good reason for doing so. The major research in the area should be presented critically which will then lead to a discussion of the gaps in knowledge in the area.
- 2. Aims/hypotheses:** The discussion described above will lead into a concise description of the specific aims and/or hypotheses of your project. These can be presented in dot point form. It should be clear how these aims will address the gaps in the knowledge in the chosen area of research.
- 3. Research plan and methods:** This section should describe the **general strategy** for achieving the aims listed in (2) and the detailed plan of how the experiments will be performed. This section can also include citation of literature describing such methods. This part should comprise approximately one-third of your proposal. **THIS DOCUMENT IS NOT TO CONTAIN ANY PRELIMINARY RESULTS OR "PROGRESS SO FAR".**

References in the text must be cited as per an ACS Chemistry journal format (it is recommended that this be discussed with the supervisor). A full and accurate list of references must be given at the end under the heading *References*. Students are **strongly** encouraged to learn how to use EndNote or comparable programs.

You are to format the document with a 12 point Arial or Times New Roman font, on double-sided A4 paper, allowing a 4cm margin on the inside and 2cm margins at the outside and top and bottom. Use 1.5 spacing. Number pages so that your Table of Contents can refer to them. Figures, schemes and tables should be placed in the running text. Figures, particularly chemical structures should be drawn in ChemDraw or a similar drawing program and pasted into the document.

You are asked to submit one (1) hard copy of the document to the SCMB Administration Office by the due date, AND one (1) electronic copy in pdf format via Turnitin. Your proposal will be assessed by two academic staff members. The examiners will be asked to consider the following questions:

- Is your analysis of the research field, including literature relating to past studies, a critical analysis or just a summary of what is known?
- Do you have a clear conceptual understanding of the science underpinning the project?
- Have you provided a clear justification of the scientific significance of the proposal and why it is original and innovative?
- Have you given a clear statement of aims and hypotheses to be tested in the project? Are the aims and hypotheses reasonable?
- Is it clear that the project is feasible?
- Is the proposal well organised and presented?

4.5 Special Topics in Chemistry (#2)

Each student shall select **one** of the following three modules according to their field of interest. **All modules will be delivered and assessed in Semester 1.** For more details about each module please contact the Director or consult the CHEM6511 Electronic Course Profile.

The modules are very “fluid” and change each year depending on which academics are contributing. It is best to ask for details from the relevant coordinator. All modules will start in **FEBRUARY 2017** so that the assessment can be completed well before the due date for the report documents. Please keep an eye on your UQ email address for details of starting times and meeting venues.

Module 1 Synthetic Methods & Structure Elucidation in Organic Chemistry
Coordinator: Prof James de Voss

Module 2 Applications of Instrumental Methods in Inorganic Chemistry
Coordinator: Dr Evan Moore

Module 3 Advanced Physical and Materials Chemistry
Coordinator: Dr Kristofer Thurecht

The selection of coursework should be discussed with the student’s supervisor. The final choice is subject to approval by the Honours Director.

4.6 Final Assessment

The overall grade and Honours Class attained will be calculated on the GPA of the course. Completion of **all** assessment components is compulsory.

The potential of students is evaluated as follows:

- **A Class I Honours graduate** is expected to exhibit academic independence as well as a high level of innovative and interpretative skills. They are expected to have the potential for completing a high quality PhD and should exhibit flair in academic communication.
- **A Class IIA Honours graduate** is also regarded as capable of completing a PhD, although they may require closer supervision than those with a Class I degree. It is a common observation that ultimately there may be little significant difference between the subsequent attainment of a Class I and a high Class IIA graduate.
- **A Class IIB Honours graduate** is regarded as having benefited from their Honours year to the extent that they have reached a level of performance and comprehension significantly above that of pass standard, but they have not yet demonstrated the capacity for proceeding to a PhD degree. However, Class IIB Honours graduates may enrol in an MPhil degree.
- **A Class IIIA Honours graduate** is regarded as demonstrating relatively little facility and/or independence in laboratory work. Such a graduate would be distinguishable from a good pass graduate by having participated in a further year of largely practical instruction.

A summary assessment guide for awarding final Honours marks is presented below.

Honours Class	GPA	Comments
Class I	6.600-7.000	Work of exceptional quality consistent with a student who would make a strong PhD candidate or research assistant; the report contains frequent examples of excellent critical thinking skills and personal insights into the research area.
Class I	6.200-6.590	Work of very good quality consistent with a student who would make a good PhD candidate or research assistant; the report contains examples of excellent critical thinking skills and personal insights into the research area.
Class IIA	5.650–6.199	Work of good quality in all aspects of the report as expected from a student who has the potential to be able to undertake a PhD or act as a research assistant, but shows lesser critical thinking skills and personal insights into research area.
Class IIB	5.000-5.649	Adequate quality in most aspects of the report, but some inadequacies in understanding, critical thinking skills, literacy, organisation and presentation.
Class IIIA	4.000-4.999	Adequate quality work with significant deficiencies in understanding, critical thinking skills, literacy, organisation and presentation.
Class IIIB	<4.000	Inadequate quality work with significant errors and deficiencies in understanding, critical thinking skills, literacy, organisation and presentation.

*Dr Evan Moore
February 2017*

1. INTRODUCTION

Welcome to the Molecular Biosciences Honours program. We are very pleased that you have chosen this Program for your Honours year and hope you find the experience stimulating, interesting and satisfying.

This guide is designed to provide you with a detailed outline of the requirements and expectations for your year with us as an Honours candidate. You will gain training and a qualification in a specialised area of Molecular Biosciences. However, you should also become aware of current developments outside your area of speciality (by attending seminars, reading, and talking with colleagues and staff).

1.1 Program Directors and Administration

Directors: Prof. Roy Hall (roy.hall@uq.edu.au), A/Prof. James Fraser (j.fraser1@uq.edu.au) and Prof. Gene Tyson (g.tyson@uq.edu.au).

Administrative Contacts:

Administrative Assistant: Louise Nimwegen (SCMB Reception, Level 3, Chemistry Building (68)); **or**
Manager, Coursework Academic Administration: Tammie Fair (SCMB Reception, Level 3, Chemistry Building (68)).

Email enquiries: honours@scmb.uq.edu.au

1.2 Safety, Ethics and Laboratory Procedures

Each student working in Building 68 or 76 is required to read the Safety Handbook, copies of which are distributed at your safety induction. Students are also required to attend a safety induction on laboratory safety. The schedule for this is included in Appendix 2.

Ethical approval for all animal and/or human experimentation must be obtained before commencing experimental work. Your supervisor will usually have obtained approval for the project in which you will work, but you will have to obtain personal approval for your part in the work. A copy of your Ethical Approval notification must be bound in your final report. Application forms are available from the Research and Innovation Division website (<http://www.uq.edu.au/research/rid>). Rules and interpretation are complex. If in doubt, consult the School Integrity Officer (Dr Simon Worrall) for advice.

Be certain that you clearly understand what is required for your research project. Discuss any problems with your supervisor. If you have other concerns at this early stage please consult the Honours Directors or an Honours administrative staff member.

1.3 Monitoring Progress

We want to know, as early as possible, of any problems, perceived or otherwise, that you may encounter during your Honours year. If you have ANY concerns whatsoever with the progress of your work, your working environment, supervisor, interactions with a colleague, or any other issue, we want to hear about it so that we can help resolve them. Any approach you make to the Honours Directors or administrative staff will remain strictly confidential. REMEMBER, we are here to help!

To monitor your progress you will be asked to submit a Progress Report towards the end of your first semester (see Timetable on page 12). This will not be a large document to prepare. We simply want you to fill out a 2-3 page report/questionnaire halfway through the year that will give us an idea of your progress as well as your plans and timeline for finishing. Your supervisor will be asked to complete a separate questionnaire and both will be treated confidentially. We will supply more details closer to the time. Although we will not conduct interviews as a matter of course, you may ask for one as a forum to discuss any concerns or other issues you may wish to raise. The sooner we hear about any problems you may have the sooner we can resolve them.

1.4 Extensions

You will be required to submit a number of assessable items and are expected to submit these on time. Failure to meet any of the deadlines for submission of an assessable item will incur a **10% reduction in your mark for that assessment item for every day after the due date** (weekends count as one day for this purpose).

Please note that extensions are only rarely granted. Extensions will typically only be granted for reasons of significant illness of the student or family bereavement/sudden serious illness. Any request for extension must be sought at the time of the issue, not just before the assessable item is due. A medical certificate will be required if you request an extension for medical reasons. Requests for a two-day extension at the end of the year for a two-day sickness at the beginning of the year will not be granted on the basis that such interruptions are part of life.

Full details, and the application form, can be found in the electronic course profile (ECP).

1.5 Plagiarism

The University has very strong views on plagiarism. The University policy on plagiarism, including penalties for proven misconduct (from reduction of your marks to expulsion), can be found at: <http://www.uq.edu.au/myadvisor/academic-integrity-and-plagiarism>

All assignments will be submitted in electronic form for analysis by the plagiarism software *Turnitin*. The website and other details regarding electronic submission will be provided at a later date.

2. THE HONOURS PROGRAM

The 16 units (#16) of credit associated with the Honours program is a mixture of research, seminars and coursework. The program comprises one major course which has a number of assessment items, each of which are outlined in the Electronic Course Profile (ECP). Course profiles contain complete course details, deadlines and assessment information. You can view the profile for the course in which you are enrolled via mySI-net. All published profiles are accessible through the Courses and Programs website <http://www.uq.edu.au/study/>

2.1 Week 1 Orientation activities (Pass/Fail)

Formally the Honours year begins on Monday 6 February and you should have your project assigned and be ready to commence work. There are a number of introductory courses in the first couple of weeks where each student will be given information which will be very important to them throughout the year. Attendance is compulsory at each of these courses.

3. TIMETABLE FOR STUDENTS COMMENCING February 2017

Monday 6 February	Start of Honours year and Orientation
Monday 20 March	Submit your Research Proposal
27 – 31 March	Proposal Seminars (dates and times to be announced)
From 2 May	Journal Club (times and location to be announced)
Friday 26 May	Submit your Progress Report
Friday 22 September	Cease all laboratory work
Wednesday 18 October	Submit draft Research Report to Supervisor
Wednesday 25 October	Submit Research Report and Seminar Notes
6 – 10 November	Final Research Seminars, Seminar Defence and Vivas (Dates and times to be announced)
Friday 24 November	Deadline to submit electronic copy of corrected Research Report

NOTE: SUBMISSION DEADLINES MUST BE MET.

You must submit all written material by 4pm on the due date.

It is therefore particularly important in the case of the Research Report to allow sufficient time for typing, preparation of charts, diagrams, illustrations and assembly. This will take longer than you think.

4. THE HONOURS GRADING SYSTEM

In their evaluation of the grade awarded, the Molecular Biosciences Honours Directors adopt the philosophy that the level of Honours awarded should reflect the extent to which a student has shown the potential to complete a research degree successfully. The award of Honours may be in one of the following grades: **Class I**, **Class IIA**, **Class IIB** or **Class IIIA**. A student may also fail the Honours course. The potential of students is evaluated as follows:

- **A Class I Honours graduate** is expected to exhibit academic independence as well as a high level of innovative and interpretative skills. They are expected to have the potential for completing a high quality PhD and should exhibit flair in academic communication.
- **A Class IIA Honours graduate** is also regarded as capable of completing a PhD, although they may require closer supervision than those with a Class I degree. It is a common observation that ultimately there may be little significant difference between the subsequent attainment of a Class I and a high Class IIA graduate.
- **A Class IIB Honours graduate** is regarded as having benefited from their Honours year to the extent that they have reached a level of performance and comprehension significantly above that of pass standard, but they have not yet demonstrated the capacity for proceeding to a PhD degree. However, Class IIB Honours graduates may enrol in an MPhil degree.
- **A Class IIIA Honours graduate** is regarded as demonstrating relatively little facility and/or independence in laboratory work. Such a graduate would be distinguishable from a good pass graduate by having participated in a further year of largely practical instruction.

4.1 Summary Assessment Guide

A summary assessment guide for awarding final Honours marks is presented below.

Honours Class	GPA	Comments
Class I	6.600-7.000	Work of exceptional quality consistent with a student who would make a strong PhD candidate or research assistant; the report contains frequent examples of excellent critical thinking skills and personal insights into the research area.
Class I	6.200-6.599	Work of very good quality consistent with a student who would make a good PhD candidate or research assistant; the report contains examples of excellent critical thinking skills and personal insights into the research area.
Class IIA	5.650–6.199	Work of good quality in all aspects of the report as expected from a student who has the potential to be able to undertake a PhD or act as a research assistant, but shows lesser critical thinking skills and personal insights into research area.
Class IIB	5.000-5.649	Adequate quality in most aspects of the report, but some inadequacies in understanding, critical thinking skills, literacy, organisation and presentation.
Class IIIA	4.000-4.999	Adequate quality work with significant deficiencies in understanding, critical thinking skills, literacy, organisation and presentation.
Class IIIB	<4.000	Inadequate quality work with significant errors and deficiencies in understanding, critical thinking skills, literacy, organisation and presentation.

4.2 Summary of Assessment Tasks

The table below shows the relative weightings of each assessment item, displayed in terms of the #16 Honours program. The individual assessment items listed with equivalent weightings, are not courses on their own, but components of the one course that comprises your program.

Assessment Item	Relative Weightings
Orientation, School safety induction (if applicable), Library workshop attendance	Pass/Fail
Research Proposal	#2 equivalent
Research Proposal Seminar	#0.5 equivalent
Research Report and Viva, Research Performance	#10 equivalent
Research Seminar and Defence	#1.5 equivalent
Journal Club Seminar	#1 equivalent
Journal Club Participation	#1 equivalent
Seminar Notes	Pass/Fail
TOTAL PROGRAM	#16

5. BIOC6511 HONOURS PROJECT

Students commencing in Semester 1 should enrol in BIOC6511. Bench work should not begin until approximately the second week (to allow you time to get your Project Proposal organised – minor set-up work would be appropriate) and must cease four weeks prior to submission of the Research Report.

This provides one month for the final write-up (you should have been making some progress with this during the course of your research, e.g. the Materials and Methods section can be started early on).

The nature of laboratory work varies greatly, even within a discipline. There are however, certain characteristics or talents which must be cultivated in order to undertake successful research, and it is these that supervisors will be looking for and trying to encourage in students. They include:

- enthusiasm and genuine interest in the work;
- ability to perform standard techniques and handle cultures, chemicals, etc. safely;
- reliability in the performance of experimental work;
- capacity to think creatively and constructively; and to show initiative and independence;
- ability to analyse and evaluate your own and other people's results and draw conclusions; and
- ability to keep complete, accurate and clear records of your experimental work in **laboratory notebooks**.

It is the responsibility of both the student and the supervisor to see that each of them knows what is going on. Regular consultation by the student and regular inspection and discussion by the supervisor are essential. Students may not alter general work plans without approval and will not work on their own without the supervisor's input. The Honours Directors will monitor progress of all students throughout the year and expect that a good working relationship exists between the supervisor and student.

5.1 Research Proposal

This assignment comprises a **4000 word** research proposal that includes a literature review and an outline of **the work you will undertake**. The word limit does not include the index, reference list, tables, figures and figure legends. The word limit will be strictly enforced, and examiners will be under no obligation to read beyond this limit. Although your supervisor is permitted to read and comment on your proposal, they must not undertake in-depth drafting. The written work must be your own.

It is intended to provide an early focus for your project work. It may also form the basis of your introductory research report chapter.

The proposal must be submitted by 4 pm on the date that it is due (see ECP). Penalties for late submission will be applied as per 1.4 Extensions.

The purpose of the Research Proposal is to:

- Ensure that the student knows the work already done in the research area;
- Ensure that the student can assess deficiencies in the knowledge of the subject;
- Test the student's ability to read literature critically;
- Test the student's ability to organise evidence derived from other people's work; and
- Test the student's ability to write a clear, concise, readily understandable proposal in an objective manner.

The Research Proposal should consist of the following sections:

1. Aims, background and significance: this section should include hypotheses, a clear list of aims of the project in point form, a critical and concise review of the background literature (i.e. past relevant research), under sub-headings, which are listed in a Table of Contents. You should clearly state the significance of the proposal to science (i.e. why this will contribute to progress in knowledge). Headings and sub-headings may be numbered if desired. Developments in the literature are usefully followed in chronological order, but this can be varied if there is a good reason for doing so. This part should comprise approximately two-thirds of your proposal. The format required here mirrors that required for major grant applications and so is intended, in part, as training in that activity.

2. Research plan and methods: this section should describe the general strategy for achieving the aims listed in (1) and the detailed plan (i.e. list of types of experiment, including a summary of the methods to be used). This section can also include citation of literature describing such methods. This part should comprise approximately one-third of your proposal.

References in the text must be cited as per the journal *Molecular Microbiology* (author's surname in text and complete listing, including all authors and title in the reference list – ordered alphabetically). A full and accurate list of references must be given at the end under the heading *References*. Students are **strongly** encouraged to learn how to use EndNote or comparable programs.

You are to format the document with a 12 point Arial or Times New Roman font, allowing a 4cm margin on the inside and 2cm margins at the outside and top and bottom. Use 1.5 spacing. Number pages so that your Table of Contents can refer to them. Figures, schemes and tables should be placed in the running text.

The Research Proposal must be completed by the date listed on the Timetable (page 12) and submitted electronically for analysis by the plagiarism software *Turnitin*. **The file must be in PDF format.** A hard-copy (print) submission is not required.

The website and other details regarding electronic submission will be provided at a later date.

Your Research Proposal will be assessed by two academic staff members who will comment upon its qualities as outlined above. Assessment feedback forms will be returned to you.

Questions that will be considered as part of the assessment of your proposal:

- Is your analysis of the research field, including literature relating to past studies, a critical analysis or just a summary of what is known?
- Have you given a clear statement of aims and hypotheses to be tested in the project? Are the aims and hypotheses reasonable?
- Do you have a clear conceptual understanding of the science underpinning the project?
- Have you provided a clear justification of the scientific significance of the proposal and why it is original and innovative?
- Is it clear that the project is feasible?
- Is the proposal well organised and presented?

5.2 Research Proposal Seminar

A Research Proposal Seminar will be given several weeks after the start of the program, during the last week in March. The seminar will give you the opportunity to describe your research project, including the background to the project and what you plan to do during the year.

You will be notified of the time and venue for your talk by email the week prior to the period specified in the Timetable (page 12). Each seminar will be 10 minutes (maximum), with 5 minutes for discussion.

All students are requested to present their seminar as a PowerPoint presentation.

Questions will be asked by the two examiners of your research proposal. These examiners will have detailed knowledge of the research project, including the written proposal. Students will be asked in-depth questions about the research proposal as well as matters raised during the seminar presentation.

The questions and the student's responses are important for two reasons:

- First, they form part of the assessment of this component of the course; and
- Second, they provide the examiners of the student's research proposal with an opportunity to probe the student's knowledge, as well as providing early feedback on the design of the research project.

Evaluation of the Proposal Seminar

Your presentation and defence will be assessed by academic staff chosen by the Honours Directors and/or their delegates.

This component will be marked as follows:

- The presentation (80% of #0.5); and
- Responses to questions from the research proposal examiners (20% of #0.5).

What you must provide the day before the seminar

Your PowerPoint file must be supplied to the Honours administrator the day before the start of the seminar program so that it can be loaded on to the School laptop computer. You will also be required to submit your file electronically to **Turnitin**.

You will not be able to use your own laptop for these presentations. More details will be provided closer to the date.

Honours students must attend ALL sessions. Supervisors and other academic and research staff are encouraged to attend. The general audience is encouraged to attend a full session (4-6 talks) rather than individual talks to minimise disruptions between talks.

Take note of the suggestions presented below in preparing your talk

- Do not talk too fast or present too much material. Focus on the basics and select the most important points to discuss carefully and in depth. Other issues which distract from the central issue, however important they may appear, can be dealt with in question time if necessary.
- Remember that your audience will include people not expert in your field.
- Plan to spend about half of your time on the background to your project and introducing the topic. Do not forget that most of those listening will be unfamiliar with your research area.
- Plan to spend the second half of your time outlining your intentions. If by this stage you have some results, put them in by all means but do not dwell on them.
- Consult your supervisor(s) for advice at all stages during the preparation of your talk. Leave time after preparation to practice your presentation with your supervisor and colleagues. Note that people often talk much more slowly during the real presentation than during practice sessions. If necessary, plan to skip some of your material if you get behind time so that you reach a satisfactory end within your allotted 10 minutes.

5.3 Seminar and Seminar Notes (Pass/Fail)

Students are required to attend weekly formal research seminars (**at least 15 during the year**), and maintain a seminar diary, using an A4-sized notebook that includes:

- The date, title of the seminar and the speaker's name and affiliation.
- Handwritten notes (approximately ½-1 page) about the seminar, including the aims, hypotheses, scientific content, critical issues raised by the speaker, assumptions made. At least one potential question for the speaker composed by the student must be included in the notes for each of the seminars. We encourage you to actively participate in the discussion of the seminar, but we do not require each student to ask their potential question. These notes must be taken during the seminar.
- A paragraph that states the objective(s) of the speaker's work (i.e. what was he/she trying to show) and what was achieved. This should be added after the seminar, based on the notes taken. Material copied directly from the speaker's abstract is not acceptable.

Seminars that can be attended are not limited to those given in the student's School or Institution. Attendance at seminars held in other Schools, Centres or Institutes are acceptable. However, seminars given by PhD students, and informal seminars or presentations made at research group meetings are not acceptable for this part of the course.

The diary should be available for inspection by the student's supervisor or the Honours Directors at any time. It will be assessed by the Directors at the end of the year. The diary is given either a Pass or Fail grade. You must pass this section to pass the course.

Some Strategies:

The single most important thing you should do before the seminar is to read the speaker's abstract, if this has been provided. This will enable you to get a general overview of the major aims of the research, approaches used, and of the major conclusions drawn.

During the seminar learn to listen critically and sympathetically. Listen for what the presenter means rather than pick at words or specific arguments. Focus attention on the aims, hypotheses, and assumptions made; the structure of the argument; and the evidence presented (or neglected).

Make your notes brief and put them in your own words. Use margins for questions, comments, and notes to yourself on material that is not clear.

Go over your notes as soon as possible after the seminar to write a summary paragraph that states the objective(s) of the speaker's work (i.e. what was he/she trying to show) and what was achieved.

5.4 Journal Club

The Journal Club assignment will take the form of a research paper presentation and contribution to discussions on the presentations of your peers.

The objectives of this assessment task are for the student to:

- Gain knowledge in areas of molecular bioscience outside their immediate research topic;
- Read the literature critically, to recognise papers of great scientific merit in a defined area of the molecular biosciences;
- Evaluate comprehensively the work already done in that area, and to assess where deficiencies in the knowledge of the subject lie;
- Review a particular paper critically and detect its strengths and weaknesses;
- Give a presentation where you discuss the paper and answer questions relating to the outcomes of the research; and
- Develop a deeper understanding of the research projects of others in your Honours cohort and help build a cohort experience.
- The assessment task will involve an oral presentation and participation in the discussion of the presentations of other students in your Journal Club group; marks will be awarded for the oral presentation, with this mark influenced by your contributions during the presentations of your peers. Attendance at all sessions of your Journal Club is therefore essential; to get the best mark, you must both give an excellent presentation of your own, and contribute at a high level to the discussion associated with the presentations of the rest of your group.

The Journal Club assessment task will involve a 20 minute PowerPoint presentation on a paper you have selected followed by a **question period of up to 20 minutes**. Your chosen manuscript should be:

- related to your project
- not published by the laboratory you work in/cannot have your supervisor as one of the authors
- published in a journal within the last 10 years
- provided to your Journal Club group leader in time for the first session

Some Tips:

Your PowerPoint presentation is to take approximately 20 minutes. It is not wise to go considerably over or under this limit. What should your presentation contain? Perhaps most importantly you need to first establish the context of the paper you are reviewing. What is the generality of the field? What is the broad nature of the problem? What are the hypotheses of the paper and how do they relate to the state of the field? How does it relate to your own project? You might also refer to some of the work that is the basis for this paper. How recently was it done? By whom? Most of the talk should focus on what the paper has to say. What are its results or conclusions and how (or are?) they significant? Is there any controversy around the paper or are there any problems with the paper (e.g. in methods/technology, results, discussion) and can they be resolved? One way that you can look at the impact of the paper is to look it up on the *Web of Science* and look to see who has cited it and how. There is almost always interest to be gained from thinking about the sociology of the paper. Who wrote it? How many authors? Where are they based? What is their funding? Do they have a presence on the Web? Do they have a substantial body of work in this field? At the end of your talk you should hope to have:

- Conveyed the essence of the field;
- Conveyed the essence of the paper, its significance, and what you think of it; and
- Interested your audience.

Marks for participation: During your Journal Club sessions you will be assessed based on attendance, willingness to ask questions and your overall contribution to any discussion. You must read the paper to be presented prior to each session to enable you to ask relevant questions that focus on critical issues of the study, presentation or overall research theme. Attendance will be recorded, and failure to attend a session will result in stiff penalties.

Your oral presentation and participation will be assessed by the leader of your Journal Club group, with marks moderated by the Honours committee at the end of the year.

5.5 Laboratory Notebooks

All experimental work must be recorded in a laboratory notebook on the day the experiments are done – not the following day! Record everything you do in a laboratory notebook. Never use loose sheets which can be lost. Today's irrelevancy could be tomorrow's essential information. Always follow a standard pattern (i.e. date, purpose or aim, methods in all details and referenced, results, conclusions, interpretations, and suggestions for future work).

Current University policy is to use the specially printed books that can be purchased from the University Store where each page can be countersigned – consult your supervisor. This is essential if any Intellectual Property (IP) arising from your work is to be pursued. Supervisors will examine laboratory books at regular intervals. These notebooks will remain the property of the laboratory where you conducted the work.

5.6 Research Performance

The mark for Research Performance is provided by the Principal Supervisor.

5.7 Research Report

Structure

The Research Report should be written in thesis form, but modified to avoid a very lengthy document. The report must be no more **than 8000 words**. The word count includes sections 6-10 from the list below (introduction to conclusions). The word limit does not include the index, reference list, tables, figures and figure legends. The word limit will be strictly enforced. The examiners of the research report will be under no obligation to read beyond this limit.

Please format the document with a 12 point Arial or Times New Roman font, , allowing a 4 cm margin on the inside and 2cm margins at the outside, top and bottom. Use 1.5 spacing. Number pages so that your Table of Contents can refer to them. Figures, schemes and tables should be placed in the running text. The file must be uploaded to *Turnitin* in pdf format only.

The report should contain the following sections, and a numbering system for the major sections should be considered.

1. **Title**
2. **Name of candidate**
3. **Summary** (about 1 page, containing a brief statement of aims, scope and conclusions)
4. **Table of contents** (headings and sub-headings, exactly as in the text, with page numbers; lists of figures and tables are not required)
5. **List of abbreviations used** (DO NOT list standard international abbreviations)
6. **Introduction** Contains a concise review of the literature. Use the research proposal as the basis for this.
7. **Materials and methods** Published or standard methods need not be written out again in detail, merely referenced and any modifications noted; fine details can be confined to laboratory books; only the sources of uncommon chemicals or specialised equipment need be cited; and then as briefly as possible. DO NOT catalogue every item or chemical used in your study. You MUST mention the statistical methods used.
8. **Results** The results of individual experiments (or related groups of experiments) are described here. Simple results can be described in words, and extensive results condensed into a table or figure (never both for the same data). Consult a major journal for details of construction of tables and figures.
9. **Discussion** This should not repeat the details of your results, but should explain the significance of your findings in relation to each other and to the international literature.
10. **Conclusions** Briefly highlight the main findings of your project and point out directions for future research.
11. **Bibliography** References in the text must be cited as per the journal *Molecular Microbiology* (author's surname in text and complete listing, including all authors and title in the reference list – ordered alphabetically).

Scientific writing

Students may find it useful to consult one or more of the following publications to gain further insight into scientific writing (also refer to the scientific writing courses, page 29).

- General notes in the preparation of scientific papers. (1974) Royal Society, London.
- R. Barrass (1978). 'Scientists must write' Chapman & Hall, London.
- R.A. Day (1975). 'How to write a scientific paper'. ASM News 41:486-494.
- R.A. Day (1979). 'How to write and publish a scientific paper'. ISI Press, Philadelphia.
- T. Heath (1988). 'The scientific literature'. Tertiary Education Institute, UQ.

Writing the Research Report: The draft and final copy of your report

You must submit a draft of your report to your supervisor **AT LEAST ONE week** before the deadline for submission. Although your supervisor is permitted to read and comment on your proposal, they must not undertake in-depth drafting. The written work must be your own.

We will check with each supervisor that this has been done. Failure to submit a draft may impact on the final assessment of your work.

Your supervisor will review and correct the draft. It is the role of your supervisor to help you develop and fine-tune your writing. This process should progress as a partnership in which you are actively engaged. Remember however, that you retain full responsibility for the final report and that it must be your own work!

Declaration

It is a mandatory requirement that the preliminary pages of the final research report are worded and formatted as they appear in Appendix 1 of this Guide.

Submission of your Research Report

Your **pdf file** must be submitted for analysis by the plagiarism software *Turnitin* (the submission point will be advertised prior to the due date), by 4 pm on the date specified in the ECP.

Laboratory notebooks **MUST** be handed to and retained by the principal supervisor and be available for reference by the Honours Directors during the examination process.

A penalty of 10% of your final report mark per day (weekends count as one day) will be strictly applied for late submission of your research report, unless there is a valid documented reason for late submission (e.g. medical condition). You must provide the documentation with an attached note to the Honours Directors on or before the due date.

Extensions will only rarely be given.

It is easy for students to underestimate the time required to complete a research report (several weeks usually), so students are strongly advised to wind up experimental work early enough to leave adequate time for writing.

Assessment of the Research Report

Assessment of your report will be in three areas: presentation, results and discussion. The mark for this component will be finalised after the Research Seminar, Research Seminar Defence and the Viva (see section 5.9 on page 28). This will allow the examiners to probe the student's understanding of the research project and report.

(a) Presentation

You will be assessed on the presentation of your research report in terms of neatness, typographical errors, how well it is set out (with respect to the instructions detailed above), and its clarity with respect to text, tables, figures and references.

(b) Results

You will be assessed on the results obtained in your project. It does not matter whether your results are positive or negative – don't be disheartened by negative results, they are often just as important as positive results. The assessment will be made on how you have approached the project, the design of your experimental procedures and the clarity in which they are presented, the logical progression of your experimental work, and your ability to handle your data in terms of description, statistics (where necessary) and conclusions.

(c) Discussion

This is a critical part of the assessment of the research report. The capacity to discuss the significance of research findings is vital in science.

You will be assessed on how well you can assemble and discuss your results and conclusions, your understanding of their relevance, and how you relate them to the international literature. Your reading of the scientific literature should give you an understanding of the critical importance of discussions in papers – this component of the assessment will therefore enable your examiners to assess your understanding of both the results you have obtained and your knowledge of your project area.

Two examiners, who are not involved with your project, will assess your research report. These examiners will attend your Final Seminar and Viva and will ask in-depth questions about your Research Report. This provides the examiners with an opportunity to probe your knowledge about the project, including the interpretation of data and conclusions drawn from these data.

The examiners will complete the assessment of your research report after your Viva. Assessment reports will be reviewed by the Honours Directors whose job it will be to ensure parity across the different disciplines and examiners.

5.8 Research Seminar and Seminar Defence

The ability to present research findings at scientific meetings, and the ability to defend these findings, is an essential part of the training of a research scientist. The format of these seminars (15 minutes for the presentation) is the same as described for the Research Proposal Seminar above, except that (i) the focus is on the results of your research, the interpretation of these results, and an explanation of how your findings fit into the current state of research in your area, and (ii) the seminar is followed by 5 minutes of questions referred to as the Seminar Defence. Questions will cover issues raised during the presentation and the written Research Report. You should have a copy of your Research Report with you – your examiners will!

Honours students must attend ALL sessions. Supervisors and other academic and research staff are encouraged to attend. The general audience is encouraged to attend a full session (4-6 talks) rather than individual talks to minimise disruptions between talks.

Since the audience will be listening to a wide variety of talks over several days of presentations, it is important to give the aims and objectives of the research immediately after you tell the audience the title of your talk. It may even be appropriate to announce your primary finding at the beginning of the talk to help your audience keep your results in context.

Questions will be asked by the two examiners of your Research Report. These examiners will have detailed knowledge of the research project, including the written report. Students will be asked in-depth questions about the Research Report as well as matters raised during the Seminar presentation.

The questions and the student's responses are important for two reasons:

- First, they form part of the assessment of this component of the course; and
- Second, they provide the examiners of the student's Research Report with an opportunity to probe the student's knowledge about the project, including the interpretation of data and conclusions drawn from these data.

Evaluation of the Seminar and Defence

Your presentation and defence will be assessed by academic staff chosen by the Honours Directors and/or their delegates.

This component will be marked as follows:

- The presentation (80% of #1.5).
- Responses to questions from the research report examiners (20% of #1.5).

The following list is intended to give students a guide as to the sort of parameters on which an assessment will be based, but they are not meant to be exclusive. Four main facets will be considered.

1. Introduction and Development of Topic (20% of #1.5)

- 1.1 Did the introduction clearly and concisely outline the nature and scope of the topic reviewed or problem investigated?
- 1.2 Did the introduction orient the listener to the relationship of the current project with existing knowledge?
- 1.3 Was the method of investigation, and if necessary, the reasons for choice of a particular method explained?
- 1.4 Were the results clearly presented and logically ordered?
- 1.5 Did the speaker use good judgement in presenting pertinent information and excluding non-essential or distracting details?

2. Analysis and Understanding (40% of #1.5)

- 2.1 Were the results and/or concepts adequately analysed and critically evaluated?
- 2.2 Did the conclusions relate the results to the objectives of the investigation?
- 2.3 Did the speaker appear to understand clearly the background to the topic and the significance of the work?
- 2.4 Did the speaker acknowledge any real shortfalls in the work and suggest ways to overcome or avoid these in future work?
- 2.5 Did the summary adequately review the main points discussed in the seminar?

3. Presentation (20% of #1.5)

- 3.1 Did the speaker remember to face the audience when speaking, avoid reading the entire presentation, and avoid other distracting mannerisms?
- 3.2 Did the speaker project his/her voice clearly to the audience?
- 3.3 Were major concepts and conclusions explained clearly and precisely?
- 3.4 Was the speaker able to increase your interest in the topic, through personal attributes (e.g. enthusiasm, imagination, etc.)?
- 3.5 Did the speaker keep to the allotted time, and present material at a comprehensible rate?
- 3.6 Did the presentation standard indicate adequate preparation and rehearsal by the speaker?
- 3.7 Were slides and other audio-visual aids clear and helpful to the audience; rather than cluttered and confusing?

4. Questions/Defence (20% of #1.5)

- 4.1 Was the speaker able to adequately respond to questions about the seminar and the research report, or were incomplete answers given?
- 4.2 Did the speaker answer questions clearly, and address replies to the audience as a whole?

Some Tips:

Scientific presentations are part substance **and** style and it is worth spending effort on both aspects.

1. We assume that all students will use a PowerPoint presentation. If you do not wish to use this program you should contact the Director soon to discuss your plans.
2. Prepare and practice. Unless you have had a LOT of experience in public speaking, the chances are that you will not finish after about 15 minutes which is the time allocated for speaking. Run too short and your audience will think that you do not have much to say. Run too long (worse) and you run the risk of being asked to stop speaking without having made all your points.
3. Think about what you want to project to the audience. How do you do that? First by being organised and actually knowing what you are talking about. Second, by a series of *don'ts*. **Don't** play it all for laughs (which can make your audience think the work is unimportant). A joke right at the beginning is not a bad idea if you have one, but don't force it. **Don't** look bored with your own work or disparage it yourself; leave that to others! **Don't** dress like a slob! There is no need for a suit and tie but equally try to at least look like you are taking the session seriously.
4. Have a clear structure to your talk. A lot of students do this by saying at the beginning of the talk what the structure will be – *"First I am going to introduce ..., then I will..."* etc. This can work, but if you can avoid it by making the structure clear as you go then that can be better. One of the more important moments in a seminar (perhaps especially your final seminar) is when you transition from background to what you are going to do (or have done). It is wise to make this really clear with a statement like *"So that is what we know/don't know, this is what I am going to do."* It lets the listener know exactly what is going on.
5. Try to speak without notes. This is easy for some students and terrifying for others. Perhaps the best way to be organised is so that your slides remind you of exactly what it is that you need to say – so no need for notes. If this is a battle for you then practice, practice, practice.
6. Keep your slides as simple as you can. Within limits, the fewer words the better. Don't have whole sentences. Delete as many "the"s etc as you can. If you have several dot points on a slide it is often a good idea to animate them so that they come in one by one. If they are all there at once the audience is likely to read ahead and start to ignore you. You are the star – keep the focus on you! Watch out for typographical errors – they seem especially obvious in a PowerPoint presentation.
7. Questions are an important part of the process and the part of the process that is not entirely under your control. Several important points here.
 - a. Allow the Chair to field the questions. That is, allow him/her to decide who gets to ask a question. For this reason having a final slide of *Any questions?* is not a great idea. Let the Chair call for them. In an Honours seminar if a questioner is being unreasonable (asking mean or unreasonable questions) then it is the job of the Chair to intervene and save you.
 - b. Remember to always answer the question to the whole room. A bad trap is to end up in a quiet conversation with a questioner at the front of the room. This lets the rest of the audience drift off. If the questioner unwisely asked the question very softly then it doesn't hurt to repeat it so that the whole room knows what is being talked about.

- c. There are lots of different kinds of questions but perhaps the simplest classification is of those that you can answer and those that you can't! If you can think of a respectable answer, then obviously fire away. Never answer with just yes or no. "Does malaria infect anything other than humans?" "Yes" = not much of an answer. Remember that you are demonstrating what a sharp well-read and organised person you are. If you can't answer the question, **don't panic**. If you do **not** know the answer, never just say "I don't know!" Say "That is an interesting question. I don't know, but I can see that it would be worth finding out because it might help me..... Thank you for that suggestion." Or "I don't know but I suspect that it would be a combination of X and Y ...". Never intimate that the question was stupid or that you have already answered it during the talk. If that is the case the rest of the audience will know and you will have their sympathy.
- d. Try not to look pleadingly at your supervisor for help if you can't answer a question. If the supervisor takes over you will be suddenly excluded from the dialogue and marginalised in your own seminar. Much better to go with "That's an interesting question and I will try to find out".

5.9 Viva

The Research Seminar and Defence are immediately followed by a Viva. The Viva is modelled on the structure of a PhD confirmation session. It is attended by your supervisor(s), the two examiners of your Research Report and the Honours Directors. Further audience can be admitted to the Viva if the candidate agrees. It has a duration of 20 minutes. The Viva provides the opportunity for your examiners to enter with you into a deeper and more detailed discussion of your Research Report and findings than what is possible during the 5 minute Defence during your Research Seminar. This allows your examiners to get a more complete picture of your research project and report. For this reason the Viva does not carry a mark of its own, but is used to supplement the mark of the Research Report. Marks are provided to the Honours Directors immediately after the Viva, and the Directors and your supervisor(s) have the opportunity to address any issues, such as potentially diverging marks.

Some Tips:

While a Viva in front of an assessment panel might sound like a daunting task, remember that all academics want young students to succeed. The Viva just allows for a more detailed picture than the Seminar Defence. This is also the standard procedure for Research Higher Degree students during the individual milestone processes, and thus the Viva provides you with essential training for this situation. Your supervisor(s) will be present in your support and the Honours Directors act as impartial referees.

Questions for the Viva are not provided in advance to the student. However, you should have a pretty good idea about the topics that will be discussed from the questions that your examiners have been asking during the Seminar Defence.

6. SCIENTIFIC WRITING COURSES

Two separate courses, *Writing in Science and Engineering* and *writing a literature review*, which may provide you with some much needed assistance in writing your Research Report, are offered by Students Services (<http://www.uq.edu.au/student-services/learning/workshops>).

The dates and times of these courses are listed on the Student Services Calendar (<http://www.uq.edu.au/student-services/learning/workshops>).

While it is not necessary to register for the courses, you do need to arrive on time. It is strongly recommended that you attend these sessions.

7. PREPARATION OF REPORTS

7.1 Printing quota and facilities

Please consult with your supervisor about use of computing facilities for the preparation of assessment items.

The School allows a printing quota of \$14.00 for each semester of enrolment. This is the equivalent of 220 black and white pages and 30 colour pages per semester. This refers to single pages. Printing or copying double-sided, your quota will be reduced by 2 copies. Any unused quota will roll over into your second semester.

If your quota runs out, it is your responsibility to find other alternatives for printing, either on campus or privately. Some nearby choices include the libraries, the interactive Learning Centre or Print on Demand (pod). These choices come at a small cost.

The printers are activated by your student ID cards. To access your printing, or 'log-in', you will need to tap your ID card on to the sensor pad. Once you have completed your printing, touch your ID card on the sensor pad to 'log-out'. The printers are operated through a system called 'Papercut'. This means you should only use the options available to you on the printer screen.

You can collect your printing from either of the Ricoh printers in the Chemistry Building (68), Level 3, room 314.

7.2 What programs (software) should you use?

The major use you will have for computers is word processing. Microsoft Word is currently the software package of choice in the School. If you are well versed in the use of a different word processing program then you may continue to use it if you wish. Please note that the School does not provide support or advice for the use of word processing software. The School has other software packages available for specific tasks (e.g. graphics, statistics, spreadsheets). The amount of assistance/advice available will depend on the particular package.

7.3 How much time do you need?

You must submit all assessment material by 4pm on the due date. For each assessable component it is therefore important to allow sufficient time for typing, preparation of charts, diagrams, illustrations and assembly. This is especially important for your Research Report.

8. CONCLUSION

The benefit you derive from your Honours year is in proportion to the effort you put into it. The Molecular Biosciences staff wish you well and hope that through cooperation we can achieve a mutually beneficial result at the end of the year.

AND most important of all...

WORK HARD, HAVE FUN AND ENJOY YOUR YEAR WITH US!!!

“I am a scientist, a member of a most fortunate species... a happy few of us have the privilege to live with and explore the eternal, to feel the wind at the ever-advancing edge of human knowledge, and to peer into and progressively reveal the dim shapes of the unknown... in the exploration of nature, we can experience our full imaginations, our most acute logic, our deepest curiosity – and the knowledge we gain will endure throughout time.”

Robert L. Sinsheimer (discoverer of the first single-stranded DNA genome and viral ‘replicative form’, for phage ϕ X174), in “The Strands of a Life”, *The Science of DNA and the Art of Education*, University of California Press, Berkeley, 1994.

Appendix 1: Declaration

{Research Report Title}: {Subtitle}

{Candidate's full name}

A {insert type: Research Report /} submitted for the degree of Bachelor of Science (Honours) at

The University of Queensland in {month} {year}

School of Chemistry & Molecular Biosciences

Declaration by author

This research report is composed of my original work, and contains no material previously published or written by another person except where due reference has been made in the text. I have clearly stated the contribution by others to jointly-authored works that I have included in my report.

I have clearly stated the contribution of others to my research report as a whole, including statistical assistance, survey design, data analysis, significant technical procedures, professional editorial advice, and any other original research work used or reported in my report. The content of my report is the result of work I have carried out since the commencement of my honours research project and does not include a substantial part of work that has been submitted to qualify for the award of any other degree or diploma in any university or other tertiary institution. I have clearly stated which parts of my research report, if any, have been submitted to qualify for another award.

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Statement of Contributions to Jointly Authored Works Contained in the Research Report

{“No jointly-authored works.” or

List the publications using the standard citation format for your discipline followed by a short statement about the contribution of each co-author using a consistent format for all examples.

Examples of two appropriate formats:

Format one:

Citation format for paper – A was responsible for 50% of analysis and interpretation of data and 30% of drafting and writing; B was responsible for 30% of conception and design, 50% of analysis and interpretation of data, and 10% of drafting and writing; C was responsible for 40% of drafting and writing; D was responsible for 70% of conception and design and 20% of drafting and writing.

Format two:

Citation format for paper – C was responsible for reviewing and updating the literature review; B was responsible for analysing the data in tables 3 to 6 and for the translation of the Hungarian texts; A was responsible for the remainder of the work.}

Statement of Contributions by Others to the Research Report as a Whole

{“No contributions by others.” or

List the significant and substantial inputs made by others to the research, work and writing represented and/or reported in the research report. These would include significant contributions to: the conception and design of the project; non-routine technical work; analysis and interpretation of research data; drafting significant parts of the work or critically revising it so as to contribute to the interpretation.}

Statement of Parts of the Research Report or Submitted to Qualify for the Award of Another Degree

{“None.” or

List the relevant parts of the research report, the degree name, year and institution, and the outcome of the submission of material. For example:

Chapter Five, page 88 paragraph 2 to page 89 paragraph 4 submitted for BSc Honours, Queensland University of Technology, 2005, degree awarded 19 December 2005.

Chapters Two and Three submitted for MPhil, University of Queensland, 2006, thesis withdrawn from assessment and project converted to PhD.

Paper six submitted by fellow author B for PhD, University of Melbourne, 2007, thesis under assessment.}

Published Works by the Author Incorporated into the Research {“None.” or

List the publications using the standard citation format for your discipline followed by a short statement about where those published works have been incorporated into the research report/proposal. For example:

Citation format for paper – Incorporated as Chapter 3.

Citation format for paper – Partially incorporated as paragraphs in Chapters 2 and 5.}

Additional Published Works by the Author Relevant to the Research Report or but not Forming Part of it

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List the publications using the standard citation format for your discipline. The intention is give your research report assessors a summary of all the academic writing that has come out of your project, not to provide a bibliography of all your published work. }

Acknowledgements

{free text section for you to record your acknowledgment and gratitude for the more general academic input and support of your supervisor and colleagues; financial support from grants and scholarships; and the non-academic support you have received during the course of your candidature.}

Signature of Author: _____ **Date:** _____

Principal Supervisor Agreement

I have read the final report and agree with the student's declaration.

Signature of Principal Supervisor: _____ **Date:** _____

School of Chemistry & Molecular Biosciences

Wednesday 8th February 2017
9:00am PROMPT START (finish approx. 1:00 pm)
Room 228 of Molecular Sciences Building (76)

9:00	Introduction	<i>Andreas Brust</i>
9:15	Emergency Procedures	<i>Andreas Brust</i>
9:30	General Safety Risk Management Risk Assessment Database training Incident Reporting	<i>Andreas Brust</i>
10:00	Laboratory Safety Biological Safety and Regulatory Compliance	<i>Andreas Brust</i>
10:45	Morning Tea	<i>76 team room/secret garden</i>
11:00	Chemwatch/Chemwaste/Spills	<i>Andreas Brust</i>
11:45	Scenarios	<i>Andreas Brust</i>
12:00	SCMB facilities overview and lunch	<i>SCMB facilities managers Chemistry Building podium</i>
1:00	Finish	

Presenters:

<i>Dr Andreas Brust</i>	SCMB Workplace Health and Safety Manager
<i>Dr Amanda Nouwens</i>	SCMB facilities manager
<i>Dr Steve Mason</i>	SCMB facilities manager
<i>Dr Michael Nefedov</i>	SCMB facilities manager

Centrifuge training (run by Beckman): Date, time & venue to be announced.

All personnel working in PC2/PC3 laboratories MUST complete an online training module through UQ Blackboard entitled *UQ-Biosafety*. This is accessible via www.blackboard.elearning.uq.edu.au (or via a link on the UQ OH&S Unit homepage, www.uq.edu.au/ohs/). Log in using your UQ username and password.

All personnel working in Quarantine laboratories MUST also attend one of the UQ training sessions on Working with Quarantine Materials prior to commencement of work in the laboratory (if QAP certified) or as soon as possible thereafter. Go to Staff Development Site: <http://www.uq.edu.au/staffdev/index.asp> and follow the links to register for a training session.