



Faculty of Medicine

School of Medical Sciences

# School of Medical Sciences Honours

SOMS4001 (Full-time)  
SOMS4002 (Part-time)

(48 UOC)

SEMESTERS I & 2, 2011

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## COURSE OBJECTIVES

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The main aim of the course is to introduce undergraduate students to medical research. Students will undertake a supervised research project that places emphasis on advanced disciplinary knowledge, the use of specialized techniques relevant to their chosen research area, critical thinking and scientific communication. Students also gain experience in scientific writing and oral presentation via the submission of a two written assessments, a literature review and a research manuscript based on substantial independent research activity, two student seminars and a student interview. The course is also comprised of compulsory attendance at research skills seminars (in semester 1) and school research seminars (all year round).

## SoMS HONOURS COMMITTEE

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The SoMS Honours Committee is comprised of representatives of each of the academic disciplines of the School of Medical Sciences. The Honours Committee oversees the assessment and grading of the Honours projects and makes recommendations to the Head of School on final grades and nominations for University Medals. The committee ensures that the assessment of each student is fair and appropriate. The committee is also a source of help and advice for Honours students and their supervisors.

### SoMS Honours Coordinator

Dr Patsie Polly

[patsie.polly@unsw.edu.au](mailto:patsie.polly@unsw.edu.au)

Room 508, Wallace Wurth Building

Ph: 93852924

| Name                    | Phone    | E-mail                   |
|-------------------------|----------|--------------------------|
| Prof Ken Ashwell        | 93852482 | k.ashwell@unsw.edu.au    |
| A/Prof Nick Di Girolamo | 93852538 | n.digirolamo@unsw.edu.au |
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| A/Prof Renate Griffith  | 93851912 | r.griffith@unsw.edu.au   |
| Dr Karen Gibson         | 93853650 | k.gibson@unsw.edu.au     |
| Dr Nicole Jones         | 93852568 | n.jones@unsw.edu.au      |
| Prof Nick Hawkins       | 93852531 | n.hawkins@unsw.edu.au    |

### SoMS Honours Mentors

Students will be informed which member of the Honours Committee has been assigned as their mentor in week 1 of semester 1. Students should seek help and advice from their mentor when difficulties of personal or professional nature arise. The initial point of contact should be via e-mail to set an appointment. Once assessment tasks have been graded students will meet with their mentor to receive feedback on their performance.

## GRIEVANCE RESOLUTION

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If you have a grievance, in the first instance, you should consult the member of the Honours committee who has been assigned as your mentor. If you are unable to reach an acceptable resolution of the issue you should then contact the Honours Coordinator. If you are still

unable to resolve any grievance, you should consult the School's nominated Grievance Resolution Officer, [Dr Priti Pandey](#), 93852483

## **APPROACH TO LEARNING AND TEACHING**

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The learning and teaching philosophy underpinning this course is centred on Honours students taking on their 'role as a researcher'. In doing so, they develop advanced disciplinary knowledge, the use of specialised techniques relevant to their chosen research area, critical thinking, evaluation and synthesis of information in addition to scientific research communication in the oral and written forms.

The principle form of teaching is based on research supervision and direction by specialist researchers within the Faculty of Medicine. Complementary to this, Research Skills Seminars and Techniques Workshops will be taught by experts and have been designed to provide training to Honours students in diverse areas that constitute research practice. Learning outcomes from this course will form the basis for future pursuits in medical research.

The information for this course is in the form of techniques protocols, technical tips and materials, which are usually provided by each laboratory and supervisor. In addition, self-directed use of other resources such as Web based sources is expected. Information will also be provided at Research Skills Seminars and Techniques workshops. It is up to you to ensure you perform well in each part of the course; attending and preparing for these seminars and workshops; completing assessments in due time; and seeking assistance be it mentoring or supervision to clarify your understanding.

## **STUDENT LEARNING OUTCOMES**

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This Honours course will develop those attributes that the Faculty of Science has identified as important for a Science Graduate to attain. These include; skills, qualities, understanding and attitudes that promote lifelong learning that students should acquire during their university experience.

### **GRADUATE ATTRIBUTES**

- A. Research, inquiry, analytical thinking abilities and reflective practice as a 'researcher'
- B. The capability and motivation for intellectual development
- C. Ethical, social and professional understanding
- D. Effective research communication in both oral and written formats
- E. Teamwork, collaborative and management skills
- F. Information Literacy – the skills to locate, evaluate, synthesise and use relevant information.

On completion of this course students should:

1. have an understanding of OHS and laboratory safety standard operating procedures
2. be able to access scholarly journal articles and create an endnote library
3. be able to critically evaluate and synthesise scientific literature that informs their research topic
4. have gained knowledge and practical skills in research techniques directly related to their specific research topic and indirectly related via the research skills workshops
5. be able to accurately record experimental data and draw conclusions from experimental data
6. critically assess their research data and integrate it into the wider field
7. be able to demonstrate their ability to work in teams and communicate scientific information effectively in both oral and written formats

## **ATTENDANCE REQUIREMENTS**

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The course extends from early February to mid-November (semester 1 commencement) or early June to late July (semester 2 commencement). Attendance requirements will be dictated by the nature of the work in relation to preparing and writing a literature review and subsequently a manuscript, preparing and delivering two seminars and by the nature of the research project. Attendance requirements will be agreed mutually between student and supervisor, depending on the nature of the work at the time. As with academic staff, the minimum time required is standard working hours on weekdays *i.e.* 40-45h/week

The University acknowledges that students are involved in many extra-curricular activities throughout their studies. The School of Medical Sciences is generally supportive of students' activities but must be confident that these do not significantly impact on research activities or completion of assessment requirements.

Guidelines on extra-curricular activities affecting attendance can be found on the School of Medical sciences Website.

[http://medicallsciences.med.unsw.edu.au/SOMSWeb.nsf/resources/Course+Outline+NEUR+2/\\$file/Extra-curricularActivitiesSOMS.pdf](http://medicallsciences.med.unsw.edu.au/SOMSWeb.nsf/resources/Course+Outline+NEUR+2/$file/Extra-curricularActivitiesSOMS.pdf)

## **MEDICAL CERTIFICATES**

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Students who are unable to carry out their research due to illness or for other reasons must inform their supervisor as well as submit a copy of medical or other acceptable documentation to the Honours Coordinator. **Certificates should be lodged no more than 7 days after an absence. Certificates lodged after 7 days will not be accepted.**

## **SPECIAL CONSIDERATION**

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If you believe that your performance in this course has been adversely affected by sickness or for any other reason, you should notify the Registrar and ask for special consideration in the determination of your results. Such requests should be made as soon as practicable after the problem occurs.

When submitting a request for special consideration you should provide all possible supporting evidence (e.g. medical certificates) together with your student number and enrolment details. Consideration request forms are available from the Student Centre in the Chancellery. In exceptional circumstances further assessment may be given.

Please refer to <https://my.unsw.edu.au/student/resources/Policies> for further details regarding special consideration.

## **STUDENT SUPPORT SERVICES**

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Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course coordinator prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Student Equity and Disabilities Unit. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

Student Equity and Disabilities Unit, Ground Floor of the Goodsell Building

Tel: +61 2 9385 4734/5434

Email: [seadu@unsw.edu.au](mailto:seadu@unsw.edu.au)

Website: [www.studentequity.unsw.edu.au](http://www.studentequity.unsw.edu.au)

## **STUDENT RIGHTS AND RESPONSIBILITIES**

<https://my.unsw.edu.au/student/resources/Policies.html#StudentResponsibilities&Conduct>

## **APPEAL PROCEDURES**

Details can be found at myUNSW via the Student Central link.

<https://my.unsw.edu.au/student/academiclife/StudentCentralKensington.html>

## **TIMETABLE FOR FULL TIME STUDENTS COMMENCING SEMESTER 1 2011**

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| <b>Component</b>                    | <b>Date</b>  | <b>Venue for Seminar or Place for Submitting Assessment</b>                  |
|-------------------------------------|--|--|
| Research Skills Seminars            | Thursday 5-6pm, Semester 1 2011  | BioMed Theatre E   |
| Literature Review                   | 13 <sup>th</sup> April, 5pm  | G27 BSB Office, Biological Sciences BLDG                                     |
| Introductory Seminar                | 7 <sup>th</sup> to 10 <sup>th</sup> of June  | BioMed Theatre D   |
| Research Skills Test                | 16 <sup>th</sup> June, 5pm   | BioMed Theatre E   |
| Project Manuscript                  | 31 <sup>st</sup> of October, 5pm   | G27 BSB Office, Biological Sciences BLDG                                     |
| Final Seminar/<br>Student Interview | Between 7 <sup>th</sup> and 18 <sup>th</sup> of November<br>To be confirmed via<br>Blackboard/SoMS Website | BioMed Theatre D /Student Interview Venue TBA<br>via Blackboard/SoMS Website |

## **TIMETABLE FOR FULL TIME STUDENTS COMMENCING SEMESTER 2 2011**

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| <b>Component</b>                    | <b>Date</b>  | <b>Venue for Seminar or Place for Submitting Assessment</b>              |
|-------------------------------------|--|--|
| Research Skills Seminars            | Thursday 5-6pm, Semester 1 2012  | TBA  |
| Literature Review                   | 31 <sup>st</sup> August 2011, 5pm  | G27 BSB Office, Biological Sciences BLDG                                 |
| Introductory Seminar                | 7 <sup>th</sup> and 18 <sup>th</sup> of November, 2011   | BioMed Theatre D   |
| Research Skill Test                 | 14 <sup>th</sup> June, 5pm 2012  | TBA  |
| Project Manuscript                  | 30 <sup>th</sup> May, 5pm 2012   | G27 BSB Office, Biological Sciences BLDG                                 |
| Final Seminar/<br>Student Interview | Between 4 <sup>th</sup> and 8 <sup>th</sup> of June 2012<br>To be confirmed via<br>Blackboard/SoMS Website | Final Seminar/Student Interview Venue TBA<br>via Blackboard/SoMS Website |

## **TIMETABLE FOR FULL TIME STUDENTS COMMENCING SEMESTER 2 2010**

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| <b>Component</b>         | <b>Date</b>  | <b>Venue for Seminar or Place for Submitting Assessment</b>                  |
|--------------------------|--|--|
| Research Skills Seminars | Thursday 5-6pm, Semester 1 2011                        | BioMed Theatre E   |
| Literature Review        | 30 <sup>th</sup> September 2010, 5pm                   | G27 BSB Office, Biological Sciences BLDG                                     |
| Introductory Seminar     | 9 <sup>th</sup> and 12 <sup>th</sup> of November, 2010 | LG03, Wallace Wurth Building   |
| Research Skill Test      | 16 <sup>th</sup> June, 5pm, 2011                       | BioMed Theatre E   |
| Project Manuscript       | 1 <sup>st</sup> June, 5pm 2011                         | G27 BSB Office, Biological Sciences BLDG                                     |
| Final Seminar/           | 7 <sup>th</sup> to 10 <sup>th</sup> of June, 2011      | BioMed Theatre D   |
| Student Interview        | 15 <sup>th</sup> to 17 <sup>th</sup> of June, 2011     | BioMed Theatre D /Student Interview Venue TBA<br>via Blackboard/SoMS Website |

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## RESEARCH TECHNIQUES SEMINARS

Semester 1: Thursday 5-6pm, BioMed Theatre E

| Week | Date    | Topic  | Speaker                              | Department  |
|------|---------|--|--------------------------------------|---|
| 1    | 10/3/11 | Managing Scientific Literature               | Kate Dunn/Toni Gifford               | Library, UNSW                                       |
| 2    | 17/3/11 | Writing a Literature Review                  | Ms Gwyn Jones                        | The Learning Centre, UNSW                           |
| 3    | 24/3/11 | Laboratory Notebooks                         | Dr Alfredo Martinez-Coll             | NewSouth Innovations                                |
| 4    | 31/3/11 | Techniques Workshops                         |                                      |   |
| 5    | 7/4/11  | Techniques Workshops                         |                                      |   |
| 6    | 14/4/11 | Animal Ethics                                | Prof Peter Gunning                   | SoMS, UNSW  |
| 7    | 21/4/11 | Human Ethics - Why is it important?          | A/Prof Ute Vollmer-Conna             | School of Psychiatry, UNSW                          |
|      | 28/4/11 | Semester 1 Break                             |                                      |   |
| 8    | 5/5/11  | Time Management                              | Dr. Nicola Chapman                   | Thrombosis & Bleeding Disorders Research Unit, UNSW |
| 9    | 12/5/11 | Presenting Scientific Data                   | Dr. Angela Finch                     | SoMS, UNSW  |
| 10   | 19/5/11 | Analysis of Scientific Data                  | Dr. Richard Vickery                  | SoMS, UNSW  |
| 11   | 26/5/11 | Continuing Your Studies & Careers in Science | A/Prof. Pascal Carrive<br>Ryan Peden | SoMS, UNSW<br>Novartis                              |
| 12   | 2/6/11  | Presentation Skills                          | Ms Gwyn Jones                        | The Learning Centre, UNSW                           |

Semester 2: TBA

| Week | Date   | Topic               | Speaker       | Department                |
|------|--------|---------------------|---------------|---------------------------|
| TBA  | Oct/11 | Presentation Skills | Ms Gwyn Jones | The Learning Centre, UNSW |

## ACADEMIC HONESTY AND PLAGIARISM

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### What is Plagiarism?

Plagiarism is the presentation of the thoughts or work of another as one's own.\* Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism.

Knowingly permitting your work to be copied by another student may also be considered to be plagiarism.

Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources can be located via:

[www.lc.unsw.edu.au/plagiarism](http://www.lc.unsw.edu.au/plagiarism)

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

\* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle

† Adapted with kind permission from the University of Melbourne.

The School of Medical Sciences will not tolerate plagiarism in submitted written work. The University regards this as academic misconduct [http://www.student.unsw.edu.au/academiclife/assessment/academic\\_misconduct.shtml](http://www.student.unsw.edu.au/academiclife/assessment/academic_misconduct.shtml) and imposes severe penalties. Evidence of plagiarism in submitted assignments, etc. will be thoroughly investigated and may be penalised by the award of a score of zero for the assessable work. Flagrant plagiarism will be directly referred to the Division of the Registrar for disciplinary action under UNSW rules.

The attention of students is drawn to the following extract from the above website:

*"The basic principles are that you should not attempt to pass off the work of another person as your own, and it should be possible for a reader to check the information and ideas that you have used by going to the original source material. Acknowledgment should be sufficiently accurate to enable the source to be located speedily."*

*"The following are some examples of breaches of these principles:*

- a) Quotation without the use of quotation marks. It is a serious breach of these rules to quote another's work without using quotation marks, even if one then refers to the quoted source. The fact that it is quoted must be acknowledged in your work.
- b) Significant paraphrasing, e.g., several sentences, or one very important sentence, which in wording are very similar to the source. This applies even if the source is mentioned, unless there is also due acknowledgment of the fact that the source has been paraphrased.
- c) Unacknowledged use of information or ideas, unless such information or ideas are commonplace.
- d) Citing sources (e.g., texts) which you have not read, without acknowledging the 'secondary' source from which knowledge of them has been obtained."

Appropriate citation of sources therefore includes surrounding any directly quoted text with quotation marks, with block indentation for larger segments of directly-quoted text. The preferred format for citation of references is an author-date format with an alphabetically arranged bibliography at the end of the assignment. Note that merely citing textbooks or website URLs is unlikely to yield a bibliography of satisfactory standard. ***The internet should be avoided as a primary source of information.*** Inclusion of appropriate journal articles, both primary research publications and reviews, is usually expected.

## **SCIENTIFIC ETHICS**

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Students should behave in an ethical, socially responsible and professional manner throughout the Honours year (Graduate Attribute C) as outlined in the Australian Code for the Responsible Conduct of Research<sup>1</sup>. Excerpts of this code are given below.

### **General Principles of Responsible Research**

**1.6 Maintain high standards of responsible research:** Researchers must foster and maintain a research environment of intellectual honesty and integrity, and scholarly and scientific rigour. Researchers must: respect the truth and the rights of those affected by their research manage conflicts of interest so that ambition and personal advantage do not compromise ethical or scholarly considerations adopt methods appropriate for achieving the aims of each research proposal follow proper practices for safety and security cite awards, degrees conferred and research publications accurately, including the status of any publication, such as under review or in press promote adoption of this Code and avoid departures from the responsible conduct of research conform to the policies adopted by their institutions and bodies funding the research.

**1.7 Report research responsibly:** Researchers should ensure that research findings are

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<sup>1</sup> Jointly issued by the National Health and Medical Research Council, the Australian Research Council and Universities Australia.

disseminated responsibly.

1.8 Respect research participants: Researchers must comply with ethical principles of integrity, respect for persons, justice and beneficence. Written approval from appropriate ethics committees, safety and other regulatory bodies must be obtained when required.

1.9 Respect animals used in research: Researchers must respect the animals they use in research, in accordance with the *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes*

1.10 Respect the environment: Researchers should conduct their research so as to minimise adverse effects on the wider community and the environment.

1.11 Report research misconduct: A researcher who considers that research misconduct may have occurred must act in a timely manner, having regard to the institution's policies.

Report research responsibly

Researchers should ensure that research findings are disseminated responsibly.

1.8 Respect research participants: Researchers must comply with ethical principles of integrity, respect for persons, justice and beneficence. Written approval from appropriate ethics committees, safety and other regulatory bodies must be obtained when required.

1.9 Respect animals used in research: Researchers must respect the animals they use in research, in accordance with the Australian Code of Practice for the Care and Use of Animals for Scientific Purposes

1.10 Respect the environment: Researchers should conduct their research so as to minimise adverse effects on the wider community and the environment.

1.11 Report research misconduct: A researcher who considers that research misconduct may have occurred must act in a timely manner, having regard to the institution's policies.

### **Management of Research Data and primary materials**

2.5 Retain research data and primary materials: When considering how long research data and primary materials are to be retained, the researcher must take account of professional standards, legal requirements and contractual arrangements.

2.6 Manage storage of research data and primary materials: Researchers must manage research data and primary materials in accordance with the policy of the institution. To achieve this, researchers must:

Keep clear and accurate records of the research methods and data sources, including any approvals granted, during and after the research process.

Ensure that research data and primary materials are kept in safe and secure storage provided, even when not in current use.

2.7 Maintain confidentiality of research data and primary materials: Researchers given access to confidential information must maintain that confidentiality. Primary materials and confidential research data must be kept in secure storage. Confidential information must only be used in ways agreed with those who provided it. Particular care must be exercised when confidential data are made available for discussion.

### **Responsibilities of Research Trainees**

3.7 Seek guidance: A research trainee must demonstrate a professional attitude towards the research. Frequent meetings with the supervisor are important, requiring the cooperation of both parties. The trainee should not wait until approached by the supervisor but should play an active part in maintaining an appropriate schedule of meetings.

3.8 Undertake induction and training: A research trainee should complete all induction and training courses as soon as practical after starting research in an institution.

## ASSESSMENT

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|  |      |
|--|------|
| Literature Review                                  | 10%  |
| Introductory Seminar                               | 7.5% |
| Research Skills Test                               | 2.5% |
| Project Manuscript                                 | 50%  |
| Final Seminar/Manuscript Defence/Student Interview | 15%  |
| Research Performance                               | 15%  |

### Literature Review

The literature review should be not more than 3,000 words and as the name implies should give a detailed account of published scientific investigations which are relevant to the project being undertaken. It should contain an introduction, and aims, hypotheses and methods sections. The introduction should identify the limitations of the literature and/or areas of controversy and assess them critically. It should be adequately referenced with recent and appropriate studies and have clear and logical flow. The aims, hypotheses and methods sections should be between 250-300 words only (i.e. approximately a tenth of the literature review). The stated aims should clearly relate to the areas of outlined in the introduction and the hypotheses should also be clear and valid. Methods are to be summarised clearly and concisely and be appropriate and valid for the stated aims. Absolutely no results are to be included in the literature review. The word count for the literature review excludes diagrams, tables etc. which can be used. Penalties will apply for an inability to observe the word limit. The general and referencing style should follow the "School of Medical Sciences Honours Report Instructions to Authors" (see below).

Due: 13<sup>th</sup> of April, 5pm (late penalties apply); Student Inquiries Office G27 BSB Office, Biological Sciences BLDG

Length: Not more than 3,000 words.

Copies: Three (comb bound).

Attachment: One assignment coversheet

### Introductory Seminar

The introductory seminar is a 10 minute presentation with 5 minutes of questions. The presentation should cover the background and methods of the project and not contain any preliminary results. The introduction of the talk should include a critical analysis of strengths and limitations of the literature. The hypotheses and aims should be clearly stated and relate to the strengths and limitations of the literature identified. The methods should be explained clearly and concisely. The seminar should have clear and logical flow, good pace (i.e. neither hurried nor laboured) and use good visual quality slides. The student should demonstrate an understanding of the questions raised during question time by giving appropriate answers. All aspects of the seminar should be able to be understood by a non-expert audience. Each student's final seminar presentation will be assessed by academics from the audience and the dedicated Examiners 1 and 2 (as stated on each student's enrolment form) are required to attend. Dedicated Examiners 1 and 2 are expected to attend and mark the students they have agreed to examine (see 'Guidelines for Examination' below).

NOTE: An abstract is requested by 30<sup>th</sup> May i.e. one week prior to commencement of the Introductory Seminars

Date: 7<sup>th</sup> - 10<sup>th</sup> of June

Venue: BioMed D

Length: 10 minute presentation, 5 minute question time.

## **Research Skills Test**

Format: Multiple Choice Questions & Short Answer Questions (5min) covering all the material presented in the Research Skills Seminars & Techniques Workshops

Date: 16<sup>th</sup> June

Venue: BioMed E

Length: 50 minutes

## **Project Manuscript**

The general format of the project manuscript is to comply with the guidelines set out in the School of Medical Sciences Instructions to Authors and should contain an abstract, acknowledgments, brief introduction with aims and hypotheses, materials and methods, results, discussion and references sections. The word count should be not more than 5,000 words. This word limit excludes the abstract, acknowledgements and references sections, as well as supplementary data (if present), tables, figures and legends used in the text. Penalties will apply for an inability to observe the word limit. The abstract should succinctly and accurately summarise the aims and outcomes of the project. The acknowledgments are to be used to indicate how much of the research was performed independently or cooperatively. The brief introduction, aims and hypothesis section should define the problem being examined and place it in the context of published work in the area without being a complete review of the literature. It should identify the limitations of the literature and areas of controversy and give clear and valid aims and hypotheses. The format of the methods and results sections should fully comply with guidelines in the School of Medical Sciences Instructions to Authors. The methods should be appropriate and valid for the stated aims and clearly described and fully referenced. The results should reflect a significant body of work including sufficient controls and replicates and analysis of data using appropriate statistical tests. Material needed for a complete understanding or evaluation of the work, but which does not fit well in the manuscript format, should be included as supplementary data. Presentation of the results should be clear and logical and should use figures, tables, etc. The discussion should be relevant to the introduction, methods, and results sections, logical in presentation and scientific content, show critical/creative analysis, place the findings of the study in the context of past studies and have suggestions for future studies. Please note that all work which is integral to the manuscript but was not performed by the Honours student (i.e. was undertaken by another member of the supervisor's and/or co-supervisor's research group) is to be clearly disclosed in the Methods and/or Results sections of the Project Manuscript, where appropriate. This work may then be referred to in the Discussion and be assessed in the context of the methods and results attained by the Honours student. The referencing style of the project manuscript should also comply with the guidelines set in the School of Medical Sciences Instructions to Authors.

Due: 31<sup>st</sup> of October 5pm (late penalties apply); Student Inquiries Office (G27), BSB Office, Biological Sciences BLDG

Length: Not more than 5,000 words.

Copies: Three (comb bound).

Attachment: One assignment coversheet

## **Final Seminar**

The final seminar is a 12 minute presentation with 8 minutes of questions. The presentation should largely cover the results of research project. A clear, concise and appropriate introduction should be provided which identifies the limitations of the literature and areas of controversy. Clear and valid aims and hypotheses should also be stated. The results should reflect a significant body of work including sufficient controls and replicates and analysis of data using appropriate statistical tests. Presentation of the results should be clear and logical and should use figures, tables, etc. The significance of any important findings should be addressed and appropriate conclusions made. The results of the study should be placed within a broader context and suggestions should be made for future experiments. The seminar should have clear and logical flow, good pace (*i.e.* neither hurried nor laboured) and use good visual quality slides and/or overheads. The student should demonstrate understanding of the questions raised during question time by giving appropriate answers. Each student's final seminar presentation will be assessed by academics from the audience and the dedicated Examiners 1 and 2 (as stated on each student's enrolment form) are required to attend. Dedicated Examiners 1 and 2 are expected to attend and mark the students they have agreed to examine (see 'Guidelines for Examination' below).

NOTE: An abstract is requested by 31<sup>st</sup> October *i.e.* one week prior to commencement of the Final Seminars

Date: 7<sup>th</sup> - 18<sup>th</sup> of November

Venue: TBA

Length: 12 minute presentation, 8 minute question time.

## **Student Interview-Adjudication of Mark Discrepancy**

To facilitate assessment and adjudication of the project manuscript, the two examiners will interview the student in the situation where there is a serious mark discrepancy between examiners. This interview will be chaired by a member of the Honours committee in the presence of the Supervisor(s). It will be not be more than 15 minutes in duration. Laboratory notebooks, or a (single) photocopy of all relevant sections thereof, must be available at the interview. During this interview the student should address all queries, clearly demonstrate that they understand the project's methods and can place the project's findings in the context of past studies, as well as make suggestions for future experiments. The student will then leave the interview and following a further 5 minutes of discussion between the supervisor(s) and the chair of the interview, the supervisor(s) will provide their mark for the student's research performance (see below). The supervisor will then leave the interview and the examiners will provide their final marks for the project manuscript and interview. In the unlikely event that the assessments are seriously and justifiably discrepant, the Course Coordinator will obtain assessments from additional staff members.

Date: 7<sup>th</sup> - 18<sup>th</sup> of November

Venue: BioMed D

Length: 15 minutes of examiner questions

## **Research Performance**

Supervisors will provide an assessment on the level research skill development that the student has attained at the completion of the Honours year. This assessment will be based on student's research performance throughout the year including; motivation and organisational skills, research (laboratory) skills, note keeping, critical analysis and communication skills.

Supervisors will submit the "Research Performance" marking sheet at the Final Seminar.

## **Guidelines for Supervision**

Primary supervisors of Honours students within the School of Medical Sciences (SoMS) must have an academic appointment (paid or conjoint) through the Faculty of Medicine. If the supervisor does not meet either of these requirements an additional school supervisor who is a member of staff within the school must be appointed. Associate Supervisors may be appointed to play a role in the training and supervision of the student in the laboratory. This role can be undertaken by postdoctoral staff; however postgraduate students cannot take on the role of the associate supervisor.

Primary supervisors will generally have only one Honours student, although paid academic staff of SoMS may have up to two Honours students. Supervisors are required to confirm, prior to the commencement of the project, that they are financially able to support the project for the duration of the Honours year and that all ethics and other approvals required for the project have been obtained.

Supervisors should bear in mind three important points when proposing an Honours project: firstly, Honours is only an introduction to research so expectations should be realistic; secondly, the proposed project needs to yield results within the period of the Honours "year"; and finally, the Honours year is, in fact, not a full year but only 7 months of research activity plus approximately 2 months to produce and submit a Literature Review and a Project Manuscript.

Supervisors are responsible for ensuring that their student(s) meet the deadlines of the Honours program. If the Literature Review and/or the Project Manuscript are not delivered to the course coordinator by the deadline, a penalty of 1% of the total Honours grade per day will be imposed in each case, unless an extension has been granted.

Supervisors are required to attend the two presentations of their Honours student(s) in June (Introductory Seminar) and November (Final Seminar) in order to be aware of their student's performance. All supervisors are also required to attend the Student Interview of their student in November if it is required. Please see the project timeline attached for the precise dates of the above assessments. Detailed information regarding the requirements, structure and format of the Literature Review, Introductory and Final Seminars, Project Manuscript and Student Interviews are listed under "Honours assessments" on the School of Medical Sciences Honours website.

Supervisors are also responsible for ensuring that their student(s) attend the Research Techniques Seminars (during semester 1) and the School/Department/Institute research seminars (throughout the year). Please visit the School's website for the Research Techniques and School/Department Research seminar timetables. A penalty of 1% will be applied if attendance is less than 80% at these scheduled, compulsory seminars.

Supervisors are required to rank their student(s) performance using the Research Performance assessment form. This form outlines the criteria for assessing the student's performance and must be completed and given to the Honours course coordinator at the Final Seminar or Student Interview (see the "Honours assessment" for more information about the Final Seminar and Student Interview).

## **Guidelines for Examination**

Examiners with readily identifiable conflicts of interest should not be nominated. Examiners are asked to declare that they have no conflict of interest with the candidate, supervisor, or the project. Potential examiners who should be excluded include those: (i) have a current collaboration with the supervisor on the research area of the project or have published in the last 3 years or currently hold a grant with the supervisor on the research area of the project, or (ii) have substantial direct involvement in the student's work or (iii) have a current or previous personal relationship with the supervisor or student. Those potential examiners who have collaborations/publication/grants with the supervisor in a different area of research to that of the student's project may be an examiner however they are asked to declare this

conflict. The appropriateness of the examiner will then be assessed by the Honours committee.

Examiners are required to attend the Student Interviews (7-18<sup>th</sup> November) of the students they agreed to examine if an interview is required and should attend their Introductory Seminars (7-10<sup>th</sup> June) and Final Seminars (7-18<sup>th</sup> November) (the specific time and date for each student's presentation/interview will be posted on the SoMS website). **Note:** examiners who are **unable** to attend these seminars should provide two questions and the answers such that an academic examiner in the audience can ask those questions. Failure of the examiner to attend the Final Seminar and Student Interview may put the student at risk if there is a serious mark discrepancy in the Project Manuscript Mark between examiners.

Examiners are required to fill out the assessment forms, copies of which are located on the school's website on each occasion of providing their grades for the Literature Review and Project Manuscript. Examiners are required have assessed the Project Manuscript prior to attending the Final Seminar Student Interview. Feedback regarding the Literature Review should be provided for the student to use in their writing of the Project Manuscript. Please note that the final mark for the Project Manuscript is not given until after the Student Interview.

The Student Interviews are designed to help the examiners in their overall assessment of the student's knowledge and understanding of the project. Each interview is conducted by the two examiners in the presence of the supervisors as well as a member of the Honours committee. The duration of the interview is 15 minutes only. The interview is only in addition to the Final Seminar in the situation where marking discrepancies between examiners occur. It will take place as part of the adjudication process for the Project Manuscript mark. The Student Interview also provides an opportunity for Supervisor and Examiner adjudication.

## **PENALTIES**

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A penalty of 1% of the total Honours mark will be imposed per day for the late submission of the literature review and/or the Project Manuscript, except where an extension to the deadline has been applied for and granted. Application for an extension must be made to the course coordinator, and will only be granted in exceptional circumstances. In addition, a 1% penalty of the total Honours mark will be imposed if students fail to attend at least 80% of seminars. These include SoMS Seminars, Departmental seminars and Research Institute/Lab Group seminars. You are expected to sign off your attendance at these events.

## **HONOURS GRADES**

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>85 (Honours 1)

Work of superior quality in all aspects of research, scientific writing, and oral presentation, demonstrating the ability to organise information in a clear and concise manner, the integration of information from a wide range of sources and containing clear examples of excellent critical evaluation.

75-84 (Honours 2.1):

Work of very good quality in all aspects of research, scientific writing, and oral presentation, but showing lesser ability to organise information in a clear and concise manner, integrate information from range of sources and critically evaluate the literature and research data.

65-74 (Honours 2.2):

Good quality in all aspects research, scientific writing, and oral presentation but with inadequacies in understanding, critical skills, organisation and presentation.

50-64 (Honours 3):

Adequate quality work with significant deficiencies in understanding, critical skills, organisation and presentation

## **School of Medical Sciences Honours Manuscript - Instructions to Authors**

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**(Adapted from the Uniform Requirements for Manuscripts Submitted to Biomedical Journals, the British Journal of Pharmacology, the Journal of Anatomy, the Journal of Pathology and the Journal of Physiology)**

Manuscripts must include: 1. Title Page, 2. Abstract, 3. Introduction, 4. Methods, 5. Results, 6. Discussion, 7. Acknowledgements, 8. List of references, 9 Tables, 10. Figures and 11. Supplementary Data (optional).

### Title Page

Title: The title should contain no more than 150 characters (including spaces) and clearly indicate the subject matter of the paper.

Authors: The author's name in full and the name and addresses of the department(s) and institution(s) to which the work should be attributed.

Running Title: A running title containing no more than 50 characters (including spaces) is required.

Key Words: Three to Five key words should be provided.

Word Count: The word count excluding abstract, acknowledgments, references and figure legends should be listed.

Abbreviations: list all abbreviations used

### Abstract

An abstract of up to 250 words should follow the title page. The abstract should provide the background for the study, experimental approach, major findings and conclusions. It should be understandable without reference to the rest of the paper. References may not be cited.

### Introduction

The introduction should give a clear account of the background for the study, and the research objective or hypothesis tested should be stated. The introduction should be understandable to a non-specialist.

### Methods

The methods must be described in sufficient detail to allow the experiments to be interpreted and repeated by an experienced investigator. Give references to established methods, provide references and brief descriptions for methods that have been published but are not well known; describe new or substantially modified methods. Identify the apparatus, drugs and chemicals used, give the manufacturer's name and address in parentheses after each item. Describe the statistical methods used and define all statistical terms, abbreviations, and symbols. Specify the computer software used. Where appropriate, describe your selection of the subjects (patients or laboratory animals, including controls), identify the age, sex, strain, number used and other important characteristics of the subjects.

### Results

Present your results in logical sequence in the text, tables, graphs and illustrations. The description of the experimental results should be succinct, but in sufficient detail to allow the experiments to be analysed and interpreted by the reader. Where data is presented the mean results with standard errors, the number of observations, and statistical significance, should be given where appropriate. The rationale for performing the experiments may be briefly mentioned in the Results section, but conclusions or interpretation of results should

not be presented. Do not repeat in the text all the data that is presented in the tables or graphs. Headed paragraphs maybe used to aid in the presentation of the results.

Please note that all work which is integral to the manuscript but was not performed by the honours student (i.e. was undertaken by another member of the supervisor's and/or co-supervisor's research group) is to be clearly disclosed in the Methods, Results and/or Acknowledgments as appropriate.

### Discussion

In the discussion explore possible mechanisms or explanations for the findings of your study, compare and contrast your results with those from other relevant studies, state the limitations of the study, and explore the implications of the findings for future research. Do not repeat in detail data or other material given in the Introduction or the Results sections. The main conclusions should be conveyed in the final paragraph.

### Acknowledgements

The author should acknowledge those who have provided reagents, technical help and scientific advice.

### References

In the text, references to other work should take the form: (Bolton and Kitamura, 1983) or 'Bolton and Kitamura (1983) showed that...' When a paper written by two authors is cited, both names are given; for three or more authors only the first name is given, followed by 'et al.' References to unpublished observations or personal communications should be mentioned in the text only, and not included in the list of references. Direct reference to original research sources should be used whenever possible.

The reference list at the end of the manuscript must be arranged alphabetically according to the surname of the first author. When the names of first authors are identical, the alphabetical order of the surnames of subsequent authors takes precedence over the year of publication. The authors' names are followed by the year of publication in brackets. If more than one paper by the same authors in one year is cited, a, b, c, etc. are placed after the year of publication, both in the text and in the list of references. All authors should be quoted for papers with up to seven authors; for papers with more than seven authors, the first six should be quoted followed by et al.

The format for references to papers and books, and to chapters in books, is as follows:

Lipp P, Egger M & Niggli E (2002). Spatial characteristics of sarcoplasmic reticulum  $Ca^{2+}$  release events triggered by L-type  $Ca^{2+}$  current and  $Na^+$  current in guinea-pig cardiac myocytes. *J Physiol* **542**, 383-393.

Adrian ED (1932). *The Mechanism of Nervous Action*. Humphrey Milford, London.

Buchan AMJ, Bryant MG, Polak JM, Gregor M, Ghatei MA & Bloom SR (1981). Development of regulatory peptides in the human fetal intestine. In *Gut Hormones*, 2nd edn, ed. Bloom SR & Polak JM, pp. 119-124. Churchill Livingstone, Edinburgh.

For those articles published on online ahead of print, that have not been assigned full publication details the DOI (digital object identifier) should be used. See example below:

Lipp P, Egger M & Niggli E (2002). Spatial characteristics of sarcoplasmic reticulum  $\text{Ca}^{2+}$  release events triggered by L-type  $\text{Ca}^{2+}$  current and  $\text{Na}^+$  current in guinea-pig cardiac myocytes. *J Physiol*; DOI: 10.1113/jphysiol.2001.013382.

### Tables

Each table should be given on a separate page. Tables are numbered consecutively according to the order in which they have been first cited in the text. Tables should be numbered with Arabic numerals and the number should be followed by a brief descriptive title at the head of the table. Tables should be self-explanatory, with necessary descriptions provided in footnotes underneath the table. Give each column a short or abbreviated heading.

### Figures and Legends

Figures should be numbered consecutively according to the order in which they have been first cited in the text. Figure legends can appear below the figure and/or on a separate page. Each figure should be given a title and a legend that explains the figures in sufficient detail that, whenever possible, they can be understood without reference to the text. All symbols and abbreviations should be explained within the legend. If a figure has been published, acknowledge the original source.

### Supplementary Data

Material needed for an in depth evaluation of the work, but which does not fit well in manuscript format, should be included as Supplementary Data. These data should only be included if they enhance the overall understanding of the research but should not be essential for the understanding of the manuscript.

### Abbreviations, Units and Symbols

Use only standard abbreviations; the full term for which an abbreviation stands should precede its first use in the text. SI units and symbols should be used for physicochemical quantities. Gene names and loci should be in italics, and proteins should be in roman. Virus nomenclature (and acronyms) should follow the guidelines of the International Committee on the Taxonomy of Viruses (ICTV). Chemical nomenclature should follow the International Union of Pure and Applied Chemistry (IUPAC) definitive rules for nomenclature. Pharmacological units should follow the guidelines given in the British Journal of Pharmacology.

### Formatting and Technical Instructions

Text should be times roman, 12 point font, with 1.5 line-spacing throughout the manuscript. Margins should be 3 cm on the left-hand side, 2 cm on the right-hand, 2 cm at the top and 2 cm at the bottom. The manuscript should be no more than 5000 words excluding; the abstract, acknowledgements and references, tables, figures, legends, and supplementary data.

| Criteria                                     | Literature Review (Mark out of 10 for each marking criteria)  |  |   |  |   |   |  |
|--|---|--|---|--|---|---|--|
|  | 10-9.0  | 9.0-8.5  | 8.4-8.0   | 7.9-7.5  | 7.4-6.5   | 6.4-5.0   | 5-0  |
| <b>Background</b><br>_____/10 x 2.5          | Very comprehensive, detailed and focused introduction.  | Highly detailed and focused introduction.  | Detailed and focused introduction   | Detailed introduction.   | Some key basic information missing in introduction.   | Major lack of key basic information in introduction.  | Lack of significant detail in introduction.  |
| <b>Critical Analysis</b><br>_____/10 x 2.5   | Comprehensive critical analysis of strengths and limitations of the literature  | Critical analysis of strengths and limitations of the literature   | Some critical analysis of strengths and limitations of the literature.  | Some critical analysis of strengths and limitations of the literature but mostly descriptive                                       | Limited critical analysis of strengths and limitations of the literature, mostly descriptive                        | Very limited critical analysis of strengths and limitations of the literature.                    | No critical analysis of strengths and limitations of the literature presented                      |
| <b>Hypotheses &amp; Aims</b><br>_____/10 x 1 | Hypotheses and aims clearly outlined and comprehensively justified.   | Hypotheses and aims clearly outlined and justified.  | Hypotheses and aims outlined and justified.   | No clear hypotheses. Aims outlined and justified.  | No clear hypotheses. Aims outlined.   | No clear hypotheses. Aims not clearly outlined.   | No hypotheses or aims apparent.  |
| <b>Methods</b><br>_____/10 x 0.5             | Clear and detailed description of proposed experiments. Comprehensively planned and accurately outlined experiments.          | Clear and detailed description of proposed experiments. Accurately outlined experiments.                         | Clear description of experiments, but minor detail lacking. Accurately outlined experiments.                                  | Description of experiments mostly clear, but some detail lacking. Minor inconsistencies in experimental design.                    | Description of experiments lacked some major detail. Minor inconsistencies in experimental design.                  | Description of experiments lacks major details. Major inconsistencies in experimental design.     | Experiments not described.   |
| _____/10 x 0.5                               | Well developed and very clear links between hypotheses, aims and methods and literature.                                      | Very clear links between hypotheses, aims and methods and literature.  | Clear links between hypotheses, aims and methods and literature.  | Some links between hypotheses, aims and methods and literature.  | Poor links between hypotheses, aims and methods and literature.   | No links between hypotheses, aims and methods and literature.                                     | No hypotheses, aims or methods   |
| <b>References</b><br>_____/10 x 1            | Predominant and comprehensive use of primary articles. All articles presented from recent or seminal publications.            | Predominant use of primary articles. All articles presented from recent or seminal publications.                 | Predominant use of primary articles. Most articles presented from recent or seminal publications.                             | Some over reliance on reviews. Most articles presented from recent or seminal publications   | Some over reliance on reviews. Many articles not from recent or seminal publications.                               | Significant over reliance on reviews. Limited number of recent or seminal articles used.          | Use of literature limited to a few articles and reviews. Poor attempt to explore literature.       |
| _____/10 x 1                                 | Citation style correct and consistent throughout. Reference list completely accurate with no errors.                          | Citation style correct and consistent. Reference list complete, but a few minor errors.                          | Citation style consistent. Reference list complete, but many minor errors.  | Some references inconsistent between text and list with many minor errors. Citation style mostly consistent.                       | Many references inconsistent between text and list with many minor errors. Citation style incorrect / inconsistent. | Many inconsistencies between text and list. Some major errors. Inappropriate citation style used. | Many references inconsistent between text and list. Many major errors.                             |
| <b>Presentation</b><br>_____/10 x 1          | No grammatical or spelling errors. Professional expression and style used consistently. All figures accurate and informative. | No grammatical or spelling errors. Professional expression and style used. All figures accurate and informative. | No grammatical errors and minor spelling errors. Professional expression and style used. All figures accurate and informative | Minor grammatical errors and minor spelling errors. Professional expression and style used. Most figures accurate and informative. | Minor grammatical errors and minor spelling errors. Professional expression used. Most figures accurate.            | Major grammatical and spelling errors. Professional expression used. Numerous errors in figures.  | Major grammatical and spelling errors. Language used not professional. Numerous errors in figures. |

| COMPONENTS                                    | INTRODUCTORY SEMINAR (Mark out of 10 for each marking criteria)   |   |   |  |   |   |   |
|---|---|---|---|--|---|---|---|
|   | 10 - 9  | 9 - 8.5   | 8.4 - 8   | 7.9 - 7.5  | 7.4 - 6.5   | 6.4 - 5   | 5 - 0   |
| <b>Background</b><br><br>/10 x 2              | <ul style="list-style-type: none"> <li>Very focused introduction with sufficient detail and all concepts and terminology described to allow for understanding by a non-expert audience.</li> </ul>  | <ul style="list-style-type: none"> <li>Focused introduction with sufficient detail and most concepts and terminology described to allow for understanding by a non-expert audience</li> </ul>   | <ul style="list-style-type: none"> <li>Somewhat focused introduction with satisfactory detail and most concepts and terminology described to allow for understanding by a non-expert audience</li> </ul>  | <ul style="list-style-type: none"> <li>Introduction lacks some focus, has adequate detail and most concepts and terminology described to allow for understanding by a non-expert audience</li> </ul>   | <ul style="list-style-type: none"> <li>Introduction lacks focus and detail. Many concepts and terminology not described to allow for understanding by a non-expert audience</li> </ul>  | <ul style="list-style-type: none"> <li>Introduction lacks focus and has inadequate detail. Most concepts and terminology not described to allow for understanding by a non-expert audience</li> </ul>   | <ul style="list-style-type: none"> <li>Introduction lacks focus and has inadequate detail. Cannot be understood by a non-expert audience</li> </ul>   |
| <b>Hypotheses &amp; Aims</b><br><br>/10 x 0.5 | <ul style="list-style-type: none"> <li>Very clear and well developed links between hypotheses, aims and methods and literature.</li> </ul>  | <ul style="list-style-type: none"> <li>Very clear links between hypotheses, aims and methods and literature.</li> </ul>   | <ul style="list-style-type: none"> <li>Clear links between hypotheses, aims and methods and literature.</li> </ul>  | <ul style="list-style-type: none"> <li>Links between hypotheses, aims and methods and literature.</li> </ul>   | <ul style="list-style-type: none"> <li>Some links between hypotheses, aims and methods and literature.</li> </ul>   | <ul style="list-style-type: none"> <li>No clear links between hypotheses, aims and methods and literature.</li> </ul>   | <ul style="list-style-type: none"> <li>No hypotheses, aims or methods</li> </ul>  |
| <b>Methods</b><br><br>/10 x 1.5               | <ul style="list-style-type: none"> <li>Clear and detailed description of proposed experiments.</li> </ul>   | <ul style="list-style-type: none"> <li>Clear description of proposed experiments.</li> </ul>  | <ul style="list-style-type: none"> <li>Clear description of experiments, but minor detail lacking.</li> </ul>   | <ul style="list-style-type: none"> <li>Descriptions of experiments mostly clear, but minor detail lacking. Minor inconsistencies in experimental design.</li> </ul>  | <ul style="list-style-type: none"> <li>Description of experiments lacked some major detail. Minor inconsistencies in experimental design.</li> </ul>  | <ul style="list-style-type: none"> <li>Description of experiments lacked some major detail. Major inconsistencies in experimental design.</li> </ul>  | <ul style="list-style-type: none"> <li>Experiments not described.</li> </ul>  |
| <b>Presentation</b><br><br>/10 x 3            | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used greatly enhances the presentation. Figures used and clearly labelled. No errors. Clear and logical structure throughout</li> <li>Delivery clear, well paced, articulate and professional throughout. Confident stance and body language. Enthusiastic and interesting.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used enhances the presentation. Figures used and clearly labelled. Minor errors. Clear and logical structure throughout</li> <li>Delivery clear, well paced, articulate and professional. Confident stance and body language. Enthusiastic.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used enhances the presentation. Figures used and labelled. Minor errors. Mostly clear and logical structure throughout</li> <li>Delivery clear, well paced and articulate. Mostly confident stance and body language. Enthusiastic.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used sometimes distracts from the presentation. Figures used and labelled with some errors. Mostly clear and logical structure throughout</li> <li>Delivery clear and well paced. Mostly confident stance and body language.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used sometimes distracts from the presentation. Not all figures used are labelled or have errors. Lacking clear and logical structure</li> <li>Delivery mostly clear. Some major lapses in body language observed</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used distracts from the presentation. Poor use of figures those used are labelled or have errors. Lacking clear and logical structure</li> <li>Delivery unclear / inaudible. Some major lapses in body language observed.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used distracts from the presentation.</li> <li>Figures used not labelled. No logical structure to presentation</li> <li>Delivery unclear / inaudible. Not confident with poor body language</li> </ul> |
| <b>Questions</b><br><br>/10 x 3               | <ul style="list-style-type: none"> <li>All responses demonstrated clear understanding of complex technical and contextual issues.</li> <li>Consistently strongly argued and accurate answers to questions drawing from related literature.</li> </ul>   | <ul style="list-style-type: none"> <li>Responses demonstrated clear understanding of complex technical and contextual issues.</li> <li>Strongly argued and accurate answers to questions drawing from related literature.</li> </ul>  | <ul style="list-style-type: none"> <li>Responses demonstrated understanding of technical and contextual issues.</li> <li>Accurate answers to questions drawing from related literature</li> </ul>   | <ul style="list-style-type: none"> <li>Responses demonstrated some understanding of technical and contextual issues.</li> <li>Mostly accurate answers to questions drawing from literature.</li> </ul>   | <ul style="list-style-type: none"> <li>Responses demonstrated some understanding of technical or contextual issues but not both.</li> <li>A number of minor errors made in responses to questions</li> </ul>  | <ul style="list-style-type: none"> <li>Responses demonstrated little understanding of technical and contextual issues.</li> <li>A number of major errors made in responses to questions.</li> </ul>   | <ul style="list-style-type: none"> <li>Responses did not demonstrate any understanding of the project.</li> <li>Significant errors made in responses to questions.</li> </ul>   |

| CATEGORY   | Project Manuscript (Mark out of 10 for each marking criteria)  |   |   |   |   |   |   |
|--|--|---|---|---|---|---|---|
|  | 10-9.0   | 9.0-8.5   | 8.4-8.0   | 7.9-7.5   | 7.4-6.5   | 6.4-5   | 5-0   |
| <b>ABSTRACT, INTRODUCTION, HYPOTHESIS AND AIMS</b><br><br>_____/10 X 1.5 | <ul style="list-style-type: none"> <li>Concise and clear account of the scientific background and the rationale of the experiment. Very clear links between hypotheses / aims and literature.</li> </ul>   | <ul style="list-style-type: none"> <li>Concise and clear account of the scientific background and the rationale of the experiment. Clear links between hypotheses / aims and literature.</li> </ul>   | <ul style="list-style-type: none"> <li>Clear account of the scientific background and the rationale of the experiment. Clear links between hypotheses / aims and literature. Minor errors.</li> </ul>   | <ul style="list-style-type: none"> <li>Clear account of the scientific background and the rationale of the experiment. Minor omissions or errors. Links between hypotheses / aims and literature</li> </ul>   | <ul style="list-style-type: none"> <li>A good introduction of the scientific background and the rationale of the experiment. Some factual error or omissions. Some links between hypotheses / aims and literature</li> </ul>  | <ul style="list-style-type: none"> <li>Some introduction to the scientific background and the rationale of the experiment. More detail needed. Some links between hypotheses / aims and literature. Factual errors or omissions in text.</li> </ul>   | <ul style="list-style-type: none"> <li>Lacking detail of the rationale of the experiment and scientific background. No links between hypotheses / aims and literature. Factual errors or omissions in text.</li> </ul>  |
| <b>MATERIALS &amp; METHODS</b><br><br>_____/10 X 1                       | <ul style="list-style-type: none"> <li>Clear and detailed description of experiments and data analysis (including statistical analysis).</li> </ul>  | <ul style="list-style-type: none"> <li>Clear description of experiments and data analysis (including statistical analysis).</li> </ul>  | <ul style="list-style-type: none"> <li>Good description of experiments and data analysis (including statistical analysis), with minor errors.</li> </ul>  | <ul style="list-style-type: none"> <li>Description of experiments and data analysis (including statistical analysis) mostly clear but significant detail lacking. Minor errors present in methods.</li> </ul>   | <ul style="list-style-type: none"> <li>Description of experiments and data analysis (including statistical analysis) lacking major details. Minor errors present methods.</li> </ul>  | <ul style="list-style-type: none"> <li>Description of experiments and data analysis (including statistical analysis) lacking major details. Major errors in methods.</li> </ul>   | <ul style="list-style-type: none"> <li>Description of experiments and data analysis (including statistical analysis) absent or unclear.</li> </ul>  |
| <b>RESULTS</b><br><br>_____/10 X 2.5                                     | <ul style="list-style-type: none"> <li>Logical and clear description of the experimental results with reference to tables and figures. No conclusions or interpretation of results presented. Sufficient controls and replicates with appropriate data analysis (including statistics) performed correctly. Represents an extensive body of work</li> <li>Graph axes labelled and units of measurement given in parentheses. Legends explain the figures in sufficient detail that they can be understood without reference to the text. Tables self-explanatory, with necessary descriptions provided in footnotes underneath the table.</li> </ul> | <ul style="list-style-type: none"> <li>Clear description of the experimental results with reference to tables and figures. No conclusions or interpretation of results presented. Sufficient controls and replicates with minor errors in data analysis (including statistics). Represents an large body of work</li> <li>Graph axes labelled and units of measurement given in parentheses. Legends explain the figures in sufficient detail that they can be understood without reference to the text. Tables self-explanatory, with necessary descriptions provided in footnotes underneath the table. A few minor errors in data presentation.</li> </ul> | <ul style="list-style-type: none"> <li>Clear description of the experimental results with reference to tables and figures. No conclusions or interpretation of results presented. Sufficient controls and replicates with minor miscalculations in data analysis (including statistics) or inaccurate presentation of data. Represents an large body of work</li> <li>Graph axes labelled and units of measurement given in parentheses. Not all legends explain the figures in sufficient detail that they can be understood without reference to the text. Most tables self-explanatory, with necessary descriptions provided in footnotes underneath the table. Some minor errors in data presentation.</li> </ul> | <ul style="list-style-type: none"> <li>Good description of the experimental results with reference to tables and figures in most instances. Generally no conclusions or interpretation of results presented. Sufficient controls and replicates with significant minor miscalculations in data analysis (including statistics) or inaccurate presentation of data. Represents an adequate body of work</li> <li>Most graph axes labelled and units of measurement given in parentheses. Not all legends explain the figures in sufficient detail to be understood without reference to the text. Most tables self-explanatory with necessary descriptions provided in footnotes. Some significant errors in data presentation.</li> </ul> | <ul style="list-style-type: none"> <li>Description of the experimental results lacks required detail and appropriate reference to figures and tables. Some conclusions or interpretation of results presented. Sufficient controls and replicates. Inappropriate data analysis, including statistics, used in some parts or inaccurate presentation of data. Represents an adequate body of work</li> <li>Results are poorly presented, most graph axes labelled and units of measurement given in parentheses. Not all legends explain the figures in sufficient detail that they can be understood without reference to the text. Most tables are self-explanatory. Some significant errors in data presentation</li> </ul> | <ul style="list-style-type: none"> <li>Description of the experimental results lacks required detail. Some conclusions or interpretation of results presented. Insufficient controls and replicates used. Major errors or omissions in data analysis. Represents an inadequate body of work</li> <li>Results are poorly presented. Most graph axes not labelled or missing units of measurement. Most legends do not explain the figures in sufficient detail that they can be understood without reference to the text. Most tables are not self-explanatory. Major errors in data presentation</li> </ul> | <ul style="list-style-type: none"> <li>No description of the experimental results given. Lack of controls and replicates with appropriate data analysis (including statistics) performed. Represents an inadequate body of work</li> <li>Results poorly presented or missing. Graph axes not labelled and units of measurement absent. Legends do not explain the figures in sufficient detail that they can be understood without reference to the text. Tables are not self-explanatory.</li> </ul> |

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|--|---|--|--|---|--|--|--|
| <p><b>DISCUSSION</b></p> <p>_____/10 X 2.5</p> | <ul style="list-style-type: none"> <li>• Discussion is clear and logical. Extensive interpretation of the results with reference to previous scientific studies. Significance of findings place within the broader context of the field.</li> <li>• Comprehensive critical analysis of strengths and limitations of experiments. Future directions identified and clearly justified.</li> </ul> | <ul style="list-style-type: none"> <li>• Discussion is clear. Appropriate interpretation of the results with reference to previous scientific studies. Significance of findings place within the broader context of the field.</li> <li>• Critical analysis of strengths and limitations of experiments. Future directions identified and justified</li> </ul> | <ul style="list-style-type: none"> <li>• Discussion is clear. Appropriate interpretation of the results with reference to previous scientific studies. Significance of findings place within the broader context of the field.</li> <li>• Critical analysis of strengths and limitations of experiments. Future directions identified and justified</li> </ul> | <ul style="list-style-type: none"> <li>• Discussion is clear. Appropriate interpretation of the results with a few minor errors. Reference to previous scientific studies. Significance of most findings place within the broader context of the field.</li> <li>• Some critical analysis of strengths and limitations of experiments. Future directions identified and mostly justified</li> </ul> | <ul style="list-style-type: none"> <li>• Discussion is unclear. Some inappropriate interpretation of the results. Lacking reference to previous scientific studies. Significance of findings not placed within the broader context of the field.</li> <li>• Lacking some critical analysis of strengths and limitations of experiments. Future directions identified.</li> </ul> | <ul style="list-style-type: none"> <li>• Results are restated with little interpretation or reference to previous scientific studies. Findings not place within the broader context of the field.</li> <li>• No critical analysis of strengths and limitations of experiments.</li> <li>• Misunderstanding of some major concepts. No future directions identified.</li> </ul> | <ul style="list-style-type: none"> <li>• Results are restated with no interpretation or reference to previous scientific studies. Findings not place within the broader context of the field.</li> <li>• No critical analysis of strengths and limitations of experiments.</li> <li>• Misunderstanding of most major concepts. No future directions identified.</li> </ul> |
| <p><b>REFERENCES</b></p> <p>_____/10 X 1.5</p> | <ul style="list-style-type: none"> <li>• Predominant and comprehensive use of primary articles. All articles presented from recent or seminal publications.</li> <li>• Citation style correct and consistent throughout. Reference list completely accurate with no errors.</li> </ul>  | <ul style="list-style-type: none"> <li>• Predominant use of primary articles. All articles presented from recent or seminal publications.</li> <li>• Citation style correct and consistent. Reference list complete, but a few minor errors.</li> </ul>  | <ul style="list-style-type: none"> <li>• Predominant use of primary articles. Most articles presented from recent or seminal publications.</li> <li>• Citation style consistent. Reference list complete, but many minor errors. Citation style consistent.</li> </ul>   | <ul style="list-style-type: none"> <li>• Some over reliance on reviews. Most articles presented from recent or seminal publications</li> <li>• Some references inconsistent between text and list with many minor errors. Citation style mostly consistent.</li> </ul>  | <ul style="list-style-type: none"> <li>• Some over reliance on reviews. Many articles not from recent or seminal publications.</li> <li>• Many references inconsistent between text and list with many minor errors. Citation style incorrect / inconsistent.</li> </ul>   | <ul style="list-style-type: none"> <li>• Significant over reliance on reviews. Limited number of recent or seminal articles used.</li> <li>• Many inconsistencies between text and list. Some major errors. Inappropriate citation style used.</li> </ul>  | <ul style="list-style-type: none"> <li>• Use of literature limited to a few articles and reviews. Poor attempt to explore literature.</li> <li>• Many references inconsistent between text and list. Many major errors.</li> </ul>   |
| <p><b>PRESENTATION</b></p> <p>_____/10 X 1</p> | <ul style="list-style-type: none"> <li>• No grammatical or spelling errors. Professional expression and style used consistently. All figures accurate and informative.</li> <li>• Word count 5000±500</li> </ul>  | <ul style="list-style-type: none"> <li>• No grammatical or spelling errors. Professional expression and style used. All figures accurate and informative.</li> <li>• Word count &lt;or&gt;5000±500</li> </ul>  | <ul style="list-style-type: none"> <li>• No grammatical errors and minor spelling errors. Professional expression and style used. All figures accurate and informative</li> <li>• Word count 5000±500</li> </ul>   | <ul style="list-style-type: none"> <li>• Minor grammatical errors and minor spelling errors. Professional expression and style used. Most figures accurate and informative.</li> <li>• Word count 5000±500</li> </ul>   | <ul style="list-style-type: none"> <li>• Minor grammatical errors and minor spelling errors. Professional expression used. Most figures accurate.</li> <li>• Word count: &lt;or&gt;5000±500</li> </ul>   | <ul style="list-style-type: none"> <li>• Major grammatical and spelling errors. Professional expression used. Numerous errors in figures.</li> <li>• Word count: 5000±500</li> </ul>   | <ul style="list-style-type: none"> <li>• Major grammatical and spelling errors. Language used not professional. Numerous errors in figures.</li> <li>• Word count: &lt;or&gt;5000</li> </ul>   |

| COMPONENTS  | FINAL SEMINAR (Mark out of 10 for each marking criteria)  |   |   |   |  |   |  |
|---|---|---|---|---|--|---|--|
|   | 10 - 9  | 9 - 8.5   | 8.4 - 8.0   | 7.9 - 7.5   | 7.4 - 6.5  | 6.4 - 5   | 5 - 0  |
| <b>Background, Hypotheses &amp; Aims and Methods</b><br><br>/10 x 1 | <ul style="list-style-type: none"> <li>Very clear &amp; concise description of background. Can be understood by a non-expert audience. Well developed links between hypotheses, aims, methods and literature</li> </ul>   | <ul style="list-style-type: none"> <li>Clear &amp; concise description of background. Can be understood by a non-expert audience. Clear links between hypotheses, aims and methods and literature</li> </ul>  | <ul style="list-style-type: none"> <li>Clear description of background. Can mostly be understood by a non-expert audience. Good links between hypotheses, aims and methods and literature</li> </ul>  | <ul style="list-style-type: none"> <li>Good description of background. Occasionally difficult for non-expert audience to understand. Links made between hypotheses, aims and methods and literature</li> </ul>  | <ul style="list-style-type: none"> <li>Unclear description of background. Occasionally difficult for non-expert audience to understand. Insufficient links between hypotheses, aims and methods and literature</li> </ul>  | <ul style="list-style-type: none"> <li>Poor description of background. Difficult for non-expert audience to understand. Lacking links between hypotheses, aims and methods and literature</li> </ul>  | <ul style="list-style-type: none"> <li>Lacking description of background. Cannot be understood by a non-expert audience. No links between hypotheses, aims, methods and literature</li> </ul>  |
| <b>Results</b><br><br>/10 x 2                                       | <ul style="list-style-type: none"> <li>All data presented clearly, accurately and with sufficient detail with direct links to aims</li> </ul>   | <ul style="list-style-type: none"> <li>All data presented clearly, accurately and with sufficient detail with links to aims</li> </ul>  | <ul style="list-style-type: none"> <li>Most data presented clearly, accurately and with sufficient detail with links to aims</li> </ul>   | <ul style="list-style-type: none"> <li>Most data presented clearly and accurately with some links to aims. Some errors</li> </ul>   | <ul style="list-style-type: none"> <li>Some data presented clearly and accurately with limited links to aims. Some errors</li> </ul>   | <ul style="list-style-type: none"> <li>Some data presented clearly with limited links to aims. Major errors</li> </ul>  | <ul style="list-style-type: none"> <li>Data presentation confusing. Major errors / omissions. No links to aims</li> </ul>  |
| <b>Discussion</b><br><br>/10 x 2.5                                  | <ul style="list-style-type: none"> <li>All data evaluated critically. Significance of findings placed within the broader context of the field. Conclusions appropriate. Clear demonstration of an understanding of the limitations of the data</li> </ul>   | <ul style="list-style-type: none"> <li>All data evaluated critically. Most findings placed within the broader context of the field. Good demonstration of an understanding of the limitations of the data</li> </ul>  | <ul style="list-style-type: none"> <li>Most data evaluated critically. Most findings placed within the broader context of the field. Good demonstration of an understanding of the limitations of the data</li> </ul>   | <ul style="list-style-type: none"> <li>Most data evaluated critically. Most findings placed within the broader context of the field. Most conclusions appropriate. Some demonstration of an understanding of the limitations of the data</li> </ul>   | <ul style="list-style-type: none"> <li>Some critical evaluation of data. Some findings placed within the broader context of the field. Errors in conclusions. Some demonstration of an understanding of the limitations of the data</li> </ul>   | <ul style="list-style-type: none"> <li>Limited critical evaluation of data. Most findings not placed within the broader context of the field. Some conclusions. Lack of demonstration of an understanding of the limitations of the data</li> </ul>   | <ul style="list-style-type: none"> <li>No critical evaluation of data. Findings not placed within the broader context of the field. No conclusions. No demonstration of an understanding of the limitations of the data</li> </ul>   |
| <b>Presentation</b><br><br>/10 x 2                                  | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used greatly enhances the presentation. Figures used and clearly labelled. No errors. Clear and logical structure throughout</li> <li>Delivery clear, well paced, articulate and professional throughout. Confident stance and body language. Enthusiastic and interesting.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used enhances the presentation. Figures used and clearly labelled. Minor errors. Clear and logical structure throughout</li> <li>Delivery clear, well paced, articulate and professional. Confident stance and body language. Enthusiastic.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used enhances the presentation. Figures used and labelled. Minor errors. Mostly clear and logical structure throughout</li> <li>Delivery clear, well paced and articulate. Mostly confident stance and body language. Enthusiastic.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used sometimes detracts from the presentation. Figures used and labelled with some errors. Mostly clear and logical structure throughout</li> <li>Delivery clear and well paced. Mostly confident stance and body language.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used sometimes detracts from the presentation. Not all figures used are labelled or have errors. Lacking clear and logical structure</li> <li>Delivery mostly clear. Some major lapses in body language observed</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used distracts from the presentation. Poor use of figures those used are not labelled or have errors. Lacking clear and logical structure</li> <li>Delivery unclear / inaudible. Some major lapses in body language observed.</li> </ul> | <ul style="list-style-type: none"> <li>The font, colour, graphics and slide layout used distracts from the presentation. Figures used not labelled. No logical structure to presentation</li> <li>Delivery unclear / inaudible. Not confident with poor body language</li> </ul> |
| <b>Questions</b><br><br>/10 x 2.5                                   | <ul style="list-style-type: none"> <li>All responses demonstrated clear understanding of complex technical and contextual issues.</li> <li>Consistently strongly argued and accurate answers to questions drawing from related literature.</li> </ul>   | <ul style="list-style-type: none"> <li>Responses demonstrated clear understanding of complex technical and contextual issues.</li> <li>Strongly argued and accurate answers to questions drawing from related literature.</li> </ul>  | <ul style="list-style-type: none"> <li>Responses demonstrated understanding of technical and contextual issues.</li> <li>Accurate answers to questions drawing from related literature</li> </ul>   | <ul style="list-style-type: none"> <li>Responses demonstrated some understanding of technical and contextual issues.</li> <li>Mostly accurate answers to questions drawing from literature.</li> </ul>  | <ul style="list-style-type: none"> <li>Responses demonstrated some understanding of technical or contextual issues but not both.</li> <li>A number of minor errors made in responses to questions</li> </ul>   | <ul style="list-style-type: none"> <li>Responses demonstrated little understanding of technical and contextual issues.</li> <li>A number of major errors made in responses to most questions.</li> </ul>  | <ul style="list-style-type: none"> <li>Responses did not demonstrate any understanding of the project.</li> <li>Significant errors made in responses to all questions.</li> </ul>  |

| Category     | Interview (Mark out of 10 for each marking criteria)   |   |   |  |  |  |   |
|--------------|--|---|---|--|--|--|---|
|              | 10-9   | 9-8.5   | 8.4-8.0   | 7.9-7.5  | 7.4-6.5  | 6.4-5  | 5-0   |
| _____/10 x 5 | All responses demonstrated clear understanding of complex technical and contextual issues.   | Responses demonstrated clear understanding of complex technical and contextual issues.                                | Responses demonstrated understanding of technical and contextual issues.                          | Responses demonstrated some understanding of technical and contextual issues.                            | Responses demonstrated some understanding of technical or contextual issues but not both.  | Responses demonstrated little understanding of technical and contextual issues.  | Responses did not demonstrate any understanding of the project. |
| _____/10 x 5 | Consistently strongly argued and accurate answers to questions placing the findings of the project in the context of past studies. | Strongly argued and accurate answers to questions placing the findings of the project in the context of past studies. | Accurate answers to questions placing the findings of the project in the context of past studies. | Mostly accurate answers to questions placing the findings of the project in the context of past studies. | A number of minor errors made in responses to questions. Cannot placing the findings of the project in the context of past studies | A number of major errors made in responses to questions. Cannot placing the findings of the project in the context of past studies | Unable to answer most questions.                                |

| COMPONENTS  | RESEARCH PERFORMANCE (Mark out of 10 for each marking criteria)  |  |  |  |   |   |
|---|--|--|--|--|---|---|
|   | 10 – 9.0   | 8.9 - 8.5  | 8.4 - 7.5  | 7.4 - 6.5  | 6.4 – 5.0   | 4.9 – 0   |
| <b>Motivation and Organisational Skills</b><br><br>_____/10 X 2 | <ul style="list-style-type: none"> <li>Exceptionally planning and time-management skills</li> <li>Demonstrated appropriate initiative in all situations</li> <li>Demonstrated independent motivation and a deep understanding of when, or when not to, persist in relation to trouble-shooting and/or data collection</li> </ul> | <ul style="list-style-type: none"> <li>Excellent planning and time-management with rare lapses</li> <li>Demonstrated appropriate initiative in most situations</li> <li>Demonstrated independent motivation and a good understanding of when or when not to, persist in relation to trouble-shooting and/or data collection</li> </ul> | <ul style="list-style-type: none"> <li>Good planning and time-management with occasional lapses</li> <li>Demonstrated initiative in many but not all situations</li> <li>Demonstrated motivation and a understanding of when or when not to, persist in relation to trouble-shooting and/or data collection</li> </ul> | <ul style="list-style-type: none"> <li>Planned well but struggled to manage multiple activities or complex tasks</li> <li>Demonstrated initiative in many but not all situations, sometimes the initiative was inappropriate</li> <li>Motivated but lacked an understanding of when to persist in relation to trouble-shooting and/or data collection</li> </ul> | <ul style="list-style-type: none"> <li>Inadequate planning lacks due regard of time limits</li> <li>Demonstrated little initiative, or initiative was largely inappropriate</li> <li>Moderate motivation but showed little or no persistence in relation to trouble-shooting and/or data collection.</li> </ul> | <ul style="list-style-type: none"> <li>Very poor time-management skills</li> <li>Demonstrated little or no initiative</li> <li>Lacked motivation and failed to persist in relation to trouble-shooting and/or data collection</li> </ul>                            |
| <b>Research Skills</b><br><br>_____/10 X 2                      | <ul style="list-style-type: none"> <li>Exceptionally high laboratory/research skills, required minimal teaching and supervision</li> <li>Appropriate attention to precision and accuracy</li> <li>Is able to trouble-shooting experimental problems without input from supervisor.</li> </ul>                                    | <ul style="list-style-type: none"> <li>Excellent laboratory/ research skills, required minimal teaching and supervision</li> <li>Appropriate attention to precision and accuracy, with minor lapses</li> <li>Is able to trouble-shooting experimental problems with minimal input from supervisor.</li> </ul>                          | <ul style="list-style-type: none"> <li>Good laboratory/ research skills, required minimal teaching and supervision</li> <li>Appropriate attention to precision and accuracy with occasional lapses.</li> <li>Is able to trouble-shooting experimental problems with some input from supervisor</li> </ul>              | <ul style="list-style-type: none"> <li>Good laboratory/ research skills, required some on-going teaching and supervision</li> <li>Limited attention to precision and accuracy</li> <li>Can provided initial ideas on trouble-shooting but these are limited in their scope</li> </ul>  | <ul style="list-style-type: none"> <li>Poor laboratory/research skills, required constant teaching and supervision</li> <li>Limited attention to precision and accuracy</li> <li>Largely relied on the supervisor for trouble-shooting</li> </ul>   | <ul style="list-style-type: none"> <li>Extremely poor laboratory/ research skills, required constant teaching and supervision</li> <li>No attention to precision and accuracy</li> <li>Relied on supervisor for trouble-shooting</li> </ul>                         |
| <b>Laboratory Notebook</b><br><br>_____/10 X 2                  | <ul style="list-style-type: none"> <li>The protocols for all experiments are described with enough detail to allow another researcher to follow with ease</li> <li>All data collected are presented or location of stored recorded. The data are clearly labelled.</li> </ul>  | <ul style="list-style-type: none"> <li>The protocols for all experiments are described with enough detail to allow another researcher to follow</li> <li>All data collected are presented or location of stored recorded. The data are clearly labelled, with minor omissions</li> </ul>   | <ul style="list-style-type: none"> <li>The protocols for most experiments are described with enough detail to allow another researcher to follow</li> <li>Most of the data collected are presented or location stored recorded. Most of the data are clearly labelled</li> </ul>                                       | <ul style="list-style-type: none"> <li>The protocols for some but not all experiments are described with enough detail to allow another researcher to follow</li> <li>Not all of the data collected are presented or location stored recorded. Most data is clearly labelled</li> </ul>  | <ul style="list-style-type: none"> <li>Some experimental protocols recorded, but without enough detail to allow another researcher to follow</li> <li>Poor record of data collected or location where it is stored. The data are not labelled.</li> </ul>   | <ul style="list-style-type: none"> <li>No detail of experimental protocols recorded</li> <li>No record of data collected or location where it is stored.</li> </ul>   |
| <b>Critical Analysis Skills</b><br><br>_____/10 X 2             | <ul style="list-style-type: none"> <li>Excellent knowledge of relevant literature and the ability to relate the relevant literature to interpretation of results</li> <li>Thorough awareness of limitations of the study and appreciation of future directions</li> </ul>  | <ul style="list-style-type: none"> <li>Able to discuss, interpret and apply the relevant literature to own data with minimal supervisory guidance</li> <li>Good appreciation of the limitations of the data and can suggest future directions for the study</li> </ul>   | <ul style="list-style-type: none"> <li>Able to discuss, interpret and apply the relevant literature to own data with some supervisory guidance</li> <li>Understands the limitations of the data and can suggest future directions for the study</li> </ul>   | <ul style="list-style-type: none"> <li>Able to discuss, interpret and apply the relevant literature to own data but needed significant supervisory guidance</li> <li>Has some appreciation of the limitations of the data and future directions of the study</li> </ul>  | <ul style="list-style-type: none"> <li>Limited ability to discuss, interpret the relevant literature. Relied on heavily on supervisor for critical analysis and interpretation of the data</li> <li>Has limited understanding of the limitations and future directions of the study</li> </ul>                  | <ul style="list-style-type: none"> <li>Has no knowledge of the relevant literature</li> <li>Unable to critically analyse and interpret own data</li> <li>Little or no appreciation of the limitations of the study. Unable to suggest future directions.</li> </ul> |

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|---|---|--|---|---|--|---|
| <p><b>Written Communication Skills</b></p> <p>_____ /10 X 2</p> | <ul style="list-style-type: none"> <li>• No supervisor contribution needed to complete assessment tasks</li> <li>• Written work is excellent in every way. No correction necessary.</li> <li>• Results presented suitable for publication, including appropriate graphical presentation and consistency in treatment of data</li> </ul> | <ul style="list-style-type: none"> <li>• Minimal supervisor contribution needed to complete assessment tasks</li> <li>• Written work is coherent well-structured and very easy to follow and read. Few corrections required.</li> <li>• Results presented in a manner that is largely suitable for publication, including appropriate graphical presentation and consistency in treatment of data</li> </ul> | <ul style="list-style-type: none"> <li>• Some supervisor contribution needed to complete assessment tasks</li> <li>• Written work easy to read and follow. Few structure, grammatical or typographical errors present</li> <li>• Presented results in a manner that is satisfactory but not necessarily ideal minor inconsistent in the presentation</li> </ul> | <ul style="list-style-type: none"> <li>• Some supervisor contribution needed to complete assessment tasks</li> <li>• Written work has many structure, grammatical or typographical errors.</li> <li>• Results presented in manner that is mostly satisfactory with some errors in the presentation</li> </ul> | <ul style="list-style-type: none"> <li>• Significant supervisor contribution needed to complete assessment tasks</li> <li>• Written work lacked structure and required significant correction of spelling and grammar.</li> <li>• Results presented in a manner that is unsatisfactory with many errors</li> </ul> | <ul style="list-style-type: none"> <li>• Large amount of supervisor contribution needed to complete assessment tasks</li> <li>• Written work lacked structure. Very poor written English skills.</li> <li>• Presentation of results inappropriate with many errors. Not all results presented.</li> </ul> |
|---|---|--|---|---|--|---|