UNSW Medicine and Health

Advanced Study and MD Research Information Guide
2024

Contact details:

Coordinator
Khanh Vo
mdresearch.support@unsw.edu.au
T: 9065 7108

Convenor
Dr Steven Leach
mdresearch.convenor@unsw.edu.au

CONTENTS

Advanced Study and MD Research Committee Approved

ADVANCED STUDY & MD RESEARCH OBJECTIVES

The main objective of our program is to introduce undergraduate medical students to research. Students will undertake a supervised research project that places emphasis on advanced disciplinary knowledge, the use of specialised techniques/ methodology relevant to their chosen research area, critical thinking, and scientific communication. Students gain experience in scientific writing and oral presentation. The course is comprised of compulsory online Research Skills Modules (via Moodle), and Departmental/Research Institute/Lab Group seminars (all year round) and advanced coursework.

Subject to entry requirements, we have **three** research streams students can select:

1) The ILP is a one-year supervised research program (24 Units of Credit).

2) The BSc (Med) Hons (**research-intensive**) is a one-year supervised research program, with an advanced course work (48 Units of Credit). Within the BSc (Med) Hons, students will select an appropriate Specialisation based on the research and coursework selected.

3) The BSc (Med) Hons (**coursework-intensive**) is a one-year supervised research/coursework program, with a focus on specialised coursework course work (48 Units of Credit). Within the BSc (Med) Hons, students will select an appropriate Specialisation based on the research and coursework selected.

The research project is designed by the supervisor (that meets our criteria for supervision) whose responsibility is also to obtain the appropriate ethical approval, if applicable, for the project prior to data collection and no later than the end of the 4th week of Term 1. The supervisor is also responsible for providing the student with the appropriate training and support for the project (including but not limited to health and safety, methodology, scientific/clinical knowledge and other relevant research skills). Such training could be provided to the student by the supervisor directly or by other resources such as the co-supervisor, other members of the research team or other resources available within the medicine program and the university. The supervisor is responsible for providing the student with an appropriate, safe and well-resourced research environment.

It is required that the student attends the research environment (excluding coursework requirements like lectures, tutorials, and exams) where the project is conducted for approximately **21 hours per week**, for 30 weeks (**ILP**) or approximately **28 hours per week** (**research-intensive**), or **14 hours per week** (**coursework-intensive**) for 34 weeks (**BSc (Med) Hons**). The time allocated is inclusive of all research assessment preparation (e.g., literature review preparation) and other research associated activities (e.g., data collection). The student is not permitted to work from home for any significant length of time (maximum of 20%) and must be engaged with the research environment, attending research and supervisor meetings, seminars and other training opportunities negotiated with the supervisor(s). By the end of the ILP and/or Honours the student is expected to:

1. Demonstrate effective oral and written communication skills in clear and concise presentation of research information that is appropriately referenced.
2. Demonstrate an understanding of relevant research methodologies by applying them appropriately to the research project.
3. Collect, analyse and interpret qualitative and/or quantitative data, and reach appropriate conclusions that are supported by evidence.
4. Interpret and critically evaluate research literature, to formulate hypotheses or research questions and then to justify discussion, comparisons or conclusions from the research performed.
5. Demonstrate professional skills in planning, time management, teamwork and research integrity.

RESEARCH PROJECT INFORMATION

The research must address research aim(s) and hypotheses or research question(s) using scientific inquiry. The research must generate and/or analyse primary or secondary data in a systematic manner. It is expected that the final research report would meet the criteria set for a manuscript to be published in an indexed peer reviewed academic journal in the field.

The study design of the Research Project may vary across the program and disciplines and below is a non-exhaustive list of examples of what would be considered appropriate, or not, for a project.

A few examples of projects that could be considered appropriate:

- Preclinical (animal studies, tissue analysis) or clinical projects testing a hypothesis.
- A qualitative inquiry of documents addressing clear research questions and using an established qualitative research framework/theory.
- A case-control study involving a very small number of participants/subjects due to objective limitations of such a study.
- A secondary analysis of an existing dataset provided it addresses research questions not asked before for that particular (or very similar) data set.
- A systematic review which might include a meta-analysis of a relevant scientific topic, which follows the conventional method(s) in the field.

Some additional considerations:

- An extension of a previous ILP/Honours project using an extended dataset (more participants/subjects and/or more variables) is acceptable provided the research questions /hypotheses already consider the findings of the previous project and aim to add some new knowledge. The new project must require new analysis and hypothesis testing or new research questions.

A few examples that **are NOT** appropriate projects:

- A descriptive audit report.
- A case report.
- A replica of a previous ILP/Honours project that uses the same data set.

SUPERVISION REQUIREMENTS AND RESPONIBILITIES

Primary supervisors of Research students must have an academic appointment through UNSW. Co-supervisors or associate supervisors may be appointed to play a role in the training and supervision of the student in the research environment. This role can be undertaken by postdoctoral staff or other suitable qualified members of the research team. Primary/Co/Associate supervisors in a close personal relationship must declare this to the Advanced Study and Research Convenor, who will then appoint an additional independent faculty supervisor.

Criteria for Primary Supervisor and Co-supervisor
- The primary supervisor and co-supervisor must be a UNSW staff member OR have a conjoint, adjunct, or visiting appointment with UNSW for the duration of the Research project. There are no exceptions to this rule.
- The primary supervisor and co-supervisor must have a Masters degree by research or PhD or medical degree (unless specifically exempted by the Committee).
- The primary supervisor and co-supervisor should have academic/medical qualifications relevant to the project.

Additional criteria for the Primary Supervisor
- The primary supervisor must have had at least 1 publication in a peer reviewed journal in the previous 3 years.
- The primary supervisor must have supervised (to completion) research students (ILP, Honours, Masters or PhD) previously.

Given the time and energy commitments needed to effectively supervise students, supervisors will be limited to a total of 4 medical students (i.e. a total of 4 from either ILP and/or BSc (Med) Hons) in one year (inclusive of joint or co-supervision). 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 research year and that all ethics and other approvals required for the project have been obtained prior to the start of the research project.

Supervisors should bear in mind three important points when proposing a Research project: **firstly**, ILP/BSc (Med) Hons is only an introduction to research so expectations should be realistic; **secondly**, the proposed project needs to yield results within the period of the ILP/BSc (Med) Hons "year"; and **finally**, the ILP/BSc (Med) Hons year is, in fact, not a full year but only 6 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 assessment deadlines of the program, including ensuring attendance at the seminars and timely submission of the Literature Review and Project Manuscript, for which late submission penalties apply. Supervisors should ensure that their student(s) attend the School/Department/Institute/hospital research seminars (throughout the year). Supervisors should also regularly check up on the students' laboratory/data collection books to ensure that experimental details and protocols are being effectively recorded.

Supervisors are required to assess their student(s) performance during the ILP/BSc (Med) Hons. Marking criteria and guides will be provided.

Primary supervisors maybe asked to be an Examiner of another ILP/BSc (Med) Hons student, and this role is part of the responsibility of supervision of an ILP/BSc (Med) Hons student. Supervisors who refuse to participate in examination of other students or who do not complete examination of those students in a timely fashion may be barred from future supervision of ILP/BSc (med) Hons students.

EXAMINER REQUIREMENTS AND RESPONIBILITIES

Each student will have one examiner for the Literature Review and one-two for the Project Manuscript (two for Honours). Examiner 1 will be nominated by the supervisor for approval by the Advanced Study and MD Research Committee (External Examiner). Examiner 2 will be appointed/confirmed by the Advanced Study and MD Research Committee (Faculty Examiner).

Guidelines for nominating an examiner
- The examiner cannot be the supervisor, co supervisor or someone with a significant involvement with the project in question but can be from the same department.
- The examiner should have expertise relevant to the project being examined.
- The examiner should have a PhD and/or an appropriate degree (e.g., MD or MBBS, or MBChB).
- There should be no conflicts of interest that would compromise the integrity of the examination process.
- Any exceptions to these rules need to be approved by the committee.

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 who: (i) have a current collaboration with the supervisor on the research area of the project or have published in the last three 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, but they will be asked to declare this conflict. The appropriateness of the examiner will then be assessed by the Advanced Study and Research Medicine Committee.

Examiners are expected to attend an online examiner induction each year.

Examiners are required to complete the assessment forms, on each occasion of providing their grades, for the Literature Review and Project Manuscript. Feedback regarding the Literature Review should be provided for the student to use in their writing of the Project Manuscript.

To standardise assessment, examiners are asked to grade students using the rubric assessment tables provided. They circle or mark the relevant levels attained for each criterion and base their score on these levels. They are asked to provide feedback for the Literature Review and Project Manuscript by giving specific comments on strengths, weaknesses, and suggestions for improvement.

The average of the 2 independent examiners mark will determine the grade for the Literature Review and Project Manuscript. If a 10-mark difference between the examiners occurs, a third examiner will be selected and the average of the 3 independent examiners will determine the final mark for that assessment. A faculty assessor will also review all grades and comments and make additional comments if needed.

RESEARCH STREAM ENTRY REQUIREMENTS

1) For ILPs, students who have completed year 3 clinical coursework requirements are eligible.

2) The entry requirements for the BSc (Med) Hons are listed below:

Students with a Phase 1 average course mark of ≥ 65 (see calculation below) and have completed 12 Units of Credit (UOC) General Education before Term 1 of the Research start, are eligible to apply.

Phase 1 average course mark calculation
The mark is calculated from the following courses:
1. MFAC 1521 Beginnings, Growth and Development A
2. MFAC 1522 Beginnings, Growth and Development B
3. MFAC 1523 Health Maintenance A
4. MFAC 1524 Health Maintenance B
5. MFAC 1525 Ageing and Endings A
6. MFAC 1526 Ageing and Endings B
7. MFAC 1527 Society & Health

In addition, students are required to pass the following courses (including passing subsequent supplementary exams, but if a student fails a course then they will be ineligible):
1. MFAC 1501 Foundations
2. MFAC 1511 Phase 1 Portfolio

3. MFAC 1512 End of Phase Examination
4. MFAC 1513 Clinical and Communication Skills Examination
5. MFAC 2514 Integrated Clinical Studies 1
6. MFAC 2515 Integrated Clinical Studies 2
7. MFAC 2516 Integrated Clinical Studies 3
8. MFAC 2511 Phase 2 Portfolio
9. MFAC 2512 Integrated Clinical Examination

ENROLLMENT REQUIREMENTS

1) For the ILP, students must enrol the following:
- MFAC 4999 (24 units of credit (UoC), multi-term course)
- MFAC 4001 (2 UoC, multi-term course)
- In terms 1 and 2, complete 12 UoC of general education

2) For the **research-intensive** BSc (Med) Hons, students must enrol/adhere to the following:
- MDCN 8889 (14 UoC) in terms 1 or 2. Compulsory in term 3.
- MDCN 8888 (8 UoC) in terms 1 or 2.
- MFAC 4001 (2 UoC, multi-term course)
- Advanced Course (6 UoC) in terms 1 or 2, from list below.
- Undertake a maximum of 16 UoC in terms 1 and 2.

3) For the **coursework-intensive** BSc (Med) Hons, students must enrol/adhere to the following:
- MDCN 8000 (6 UoC, multi-term course)
- MFAC 4001 (2 UoC, multi-term course)

PLUS

Select a specialisation below:
1. **Clinical Artificial Intelligence (Clinical AI)**
- HDAT 9100 Context of Health Data Science (T1, 6 UoC)
- HDAT 9300 Computing for Health (T1, 6 UoC)
- HDAT 9500 Machine Learning (T2, 6 UoC)
- HDAT 9000 Clinical AL (T2, 6 UoC)

2. **Environmental Health Data Science**
- HDAT 9200 Statistical Foundations for Health Data Science (T1, 6 UoC)
- GEOS 9017 Advanced Geographic Information Systems (T1, 6 UoC)
- PHCM 9612 Environmental Health (T2, 6 UoC)
- PHCM 9794 Foundations of Epidemiology (T2, 6 UoC)

Following the successful completion of the ILP or BSc (Med) Hons) Program in Term 3, all students are required to complete MFAC 2507 (Clinical Transition, 6 UoC) in preparation for clinical placements in the following year.

Advanced Study and MD Research Committee Approved

ADVANCED COURSES FOR BSc (MED) HONS ONLY (6UOC)

BSc (Med) Hons students must choose a 6 UOC Advanced Course from the following list. Please note that some courses will have limited number of places available and in some cases might not be run in a particular year.

Table 1. List of advanced courses to compliment the research project. Please consult with your supervisor on the suitability of the course before formally enrolling.

ANAT3121 Visceral Anatomy, Correlated with Medical Imaging T1
ANAT3131 Head and Neck Anatomy T2
ANAT3411 Neuroanatomy T1
BABS3151 Human Genetics T2
HDAT9000 Clinical AI T2
HDAT9100 Context of Health Data Science T1
HDAT9200 Statistical Foundations for Health Data Science T1
HDAT9400 Management and Curation of Health Data T2
HESC4501 Research Seminars T1
HESC4502 Workplace Assessment and Rehabilitation T1
NEUR3121 Molecular & Cellular Neuroscience T1
NEUR4421 Biomedical Perspectives in Neuroscience T2
PATH3205 Molecular Basis of Disease T1
PATH3206 Cancer Pathology T2
PATH3210 Visualising Disease T1
PHAR3102 Molecular Pharmacology T1
PHAR9101 Introduction to the Therapeutics Industry T1
PHCM9120 Qualitative Research Methods T2
PHCM9391 Strategy Policy and Change T1
PHCM9612 Environmental Health T2
PHCM9615 Principles and Practice of Primary Health Care Services in the Community T2
PHCM9630 Public Health Perspectives of Indigenous Health T1
PHCM9785 Predictive Modelling in Public Health T2
PHCM9794 Foundations to Epidemiology T2
PHCM9795 Foundations of Biostatistics T2
PSCY9902 Psychiatry and Criminal Law
PSCY9911 Mental Disorders, Personality Disorders & Crime
PSCY9912 Substance Use Problems and Offending
PSCY9913 Disordered & Criminal Sexual Behaviour
PSCY9914 Families, Children and Adolescents
PSYC9917 Unusual Behaviours & Special Groups T2
SWCH9011 Reproductive, Perinatal Epidemiology and Biostatistics T1
SWCH9017 Applied Reproductive Anatomy and Physiology T1