



THE UNIVERSITY OF
NEW SOUTH WALES
SYDNEY • 2052 • AUSTRALIA

FACULTY OF ENGINEERING

GSOE9400

Engineering Postgraduate Research Essentials

Course Outline –T3 2020

Version: 16/09/2020

This document, and other material, is available through Moodle (requiring zpass access):
<https://moodle.telt.unsw.edu.au/login/index.php>

Contents

| | |
|--|---|
| 1. Staff involved in the Course and their Contact Details..... | 2 |
| 2. Educational Aspects of the Course | 2 |
| 3. Course Schedule..... | 4 |
| 4. Assessment in the Course | 5 |
| 5. Course Resources..... | 6 |
| 6. Administrative Matters | 7 |

1. Staff involved in the Course and their Contact Details

1.1 Course Coordinator

Dr Vidhyasaharan Sethu has overall responsibility for the running of the course

Office: EE442, G17 (Electrical Engineering Building)

Email: v.sethu@unsw.edu.au

Phone: 9385 7737

1.2 Other important people:

The main contact email for all admin in the course is:

ENG.HDR.GSOE9400@unsw.edu.au

Mr Colin Taylor coordinates enrolments and attendance, tutors, moodle components and assignments.

Email: use course email above

2. Educational Aspects of the Course

2.1 How this course relates to others in the program

The course is compulsory for all students in the Faculty of Engineering postgraduate research programs.

2.2 Aim of the Course

This course is designed to develop research and communication skills and strategies that would support your research program, and in particular, to prepare you for progression from year 1 to year 2 of your research program. There are lectures and tutorials, Moodle course activities and assignments. The course themes include: Formulating a research topic, managing a research project, locating and evaluating the literature, engineering research methods, writing about research, speaking about research, academic integrity. The course concludes with final presentations on students' proposed research topics.

This course aims to:

1. Develop students' skills in locating and critically evaluating the literature that relates to their research project.
2. Inform students about the scientific method as it applies to engineering research
3. Raise awareness of the interpersonal skills and policies and procedures that are relevant to project management and collaborative research.
4. Develop students' understanding and skills in communicating in a variety of research forms/genres
5. Enable students to constructively give and respond to feedback

All commencing HRD students attend confirmation at the end of their first year. This course assists our HRD students to prepare for confirmation and enhances their chances of successful progress in the first year and beyond.

2.3 Learning Outcomes

By the end of this course students should be able to:

1. Locate and critically read research papers, analysing for relevance, assumptions, flaws, gaps, contribution, - Evident by producing a critical review of a journal / high quality conference paper and including a draft literature review in a research proposal report.
2. Apply the Scientific Method in coming up with a thesis problem, identifying the 'gap', formulating research hypotheses/aims and describing methodologies to test these in a research proposal report.
3. Gain skills that are specific to the discipline and generally applicable to disciplinary research.
4. Develop /consolidate interpersonal skills related to project management and collaborative research – Evident by responding appropriately to feedback and peer assessment; and by including a research project plan that shows: understanding of stakeholders, relevant policies, and procedures; and realistic milestones and contingencies.
5. Clearly and concisely communicate a research project to expert and non-expert audiences- Evident by giving mini practice talks and participating in a mini conference that includes peer feedback at the end of the course.
6. Identify their strengths and weaknesses in communicating their research and have strategies to improve their thinking and communication skills throughout their degree program – Evident by self-reflection activities.

2.4 Course Structure

This course provides a core and an individualised learning program. Students will attend 4 sets of 'core' classes and choose two 'elective' classes. Core classes will enable students to improve their knowledge and strengthen their skills; while elective classes will enable advanced students to further consolidate knowledge and skills essential to their research project.

All students will have multiple opportunities for informal practice in communicating their research topic. They will submit two key documents (critical review of a journal paper and draft research proposal) for peer and supervisor review. Finally, students will participate in the presentation of their research proposal at a seminar day within their school.

2.5 Attendance Requirements

There is an attendance requirement for GSOE9400. This includes attending ALL of the **compulsory core classes**, completing two elective classes, and participating in your school's final presentation day. There is no exam.

2.6 UNSW Graduate Attributes

This course provides an environment that fosters in our students the following graduate attributes:

| | |
|--|-------------|
| the skills involved in scholarly enquiry | Significant |
| an in-depth engagement with relevant disciplinary knowledge in its interdisciplinary context | Significant |
| the capacity for analytical and critical thinking and for creative problem solving | Significant |
| the ability to engage in independent and reflective learning | Significant |
| the skills to locate, evaluate and use relevant information (Information Literacy) | Significant |
| the capacity for enterprise, initiative and creativity | Significant |
| an appreciation of and respect for, diversity | Some |
| a capacity to contribute to, and work within, the international community | Some |
| the skills required for collaborative and multidisciplinary work | Some |
| an appreciation of, and a responsiveness to, change | Significant |
| a respect for ethical practice and social responsibility | Some |

3. Course Schedule

Set 1

1. Introduction and Course Overview
2. Formulating the Research Topic
3. Reference Management Systems
4. Introduction to Research and the Scientific Method

Set 2

1. Novelty in Research
2. Managing your Supervisor
3. Online Search in Research
4. Reviewing Literature
5. Research Data Management Plans
6. HPC Facilities

Set 3

1. Statistics in Research
2. Research Integrity
3. Prepping for Confirmation
4. Respecting Others

Set 4

1. Innovation and Commercialisation
2. Getting Published
3. Visual Communication and Presentation

Elective Modules (Choose TWO) – Timetable to be advised - see Moodle and CHECK your UNSW EMAIL account for more details.

1. Improving your Academic Writing
2. Writing Well
3. Matlab Fundamentals
4. Managing your timely Masters or PhD Completion
5. Others, still TBD

Class Time and Locations

The following dates are indicative start times for each of the sets. Unless otherwise advised all classes will be online.

Set 1 – 21st October

Set 2 – 11th November

Set 3 – 24th February

Set 4 – 1st April

Electives – to be scheduled in March/April 2021

Presentations – to be scheduled in April 2021

Please check the Moodle course frequently so you are aware of upcoming class events and any preparation required, and are informed of any last minute changes.

4. Assessment in the Course

The course is considered passed if the attendance criteria are met, and if all assessment items are “satisfactory”. Failure to hand in work on time can result in an ABSENT FAIL grade. All requests for extension must be submitted to ENG.HDR.GSOE9400@unsw.edu.au two weeks BEFORE the due date. A doctor’s letter or a supervisor’s email letter of support may be needed before the extension can be approved. For special consideration applications due to unforeseen circumstances - read the information at this link: <https://student.unsw.edu.au/special-consideration>

Assessment items:

All written assessments are uploaded in the Moodle course. Detailed instructions and due dates will be made available in the Moodle course component of GSOE9400: <https://moodle.telt.unsw.edu.au/login/index.php>

| Tasks | |
|-------------------------------|--|
| Research Data Management Plan | Online |
| Article Review | 2 pages |
| Abstract | 1 page |
| Draft Research Proposal | Max 20 pages |
| Peer review of Abstract | 3 other students’ submissions |
| Final Presentation | 8 min talk – 8 slides |
| Elective Tasks | Varies- In class tasks, 1-2 page reflective tasks or Moodle quizzes |
| Attendance | All Classes, 2 x Electives, 1 x Presentation Day MUST ATTEND ALL TO PASS THE COURSE |

Any problems with the Moodle course component – Contact ENG.HDR.GSOE9400@unsw.edu.au

5. Course Resources

5.1 Lecture Material (check the course website):

The Powerpoint lecture slides and other important resources are available for download as PDF files at the course Moodle website: <https://moodle.telt.unsw.edu.au/login/index.php>

5.2 Recommended Text and Reference Books

Evans D & Gruba P. 2002. *How to write a better thesis* (2nd ed.). Melbourne University Press: Carlton, Victoria.

Silyn-Roberts H, 2000, *Writing for science and engineering; papers, presentations and reports*, Butterworth Heineman: Oxford UK

Swales J & Feak C, 1994, *Academic writing for graduate students, essential tasks and skills*. University of Michigan Press: USA.

Swales J & Feak C, 2000, *English in today's research world*. University of Michigan Press: USA.

Van Aken D & Hosfor W. 2008. *Reporting results: a practical guide for engineers and scientists*. Cambridge University Press: Cambridge.

Zerubavel, E. 1999. *The Clockwork Muse: A practical guide to writing theses, dissertations and books*. Harvard University Press: Cambridge.

5.3 Recommended online resources

Academic Phrase Bank (<http://www.phrasebank.manchester.ac.uk>)

"The Academic Phrasebank is a general resource for academic writers. It aims to provide you with examples of some of the phraseological 'nuts and bolts' of writing organised according to the main sections of a research paper or dissertation."

Doctoral Writing SIG (<https://doctoralwriting.wordpress.com/about/>)

"A forum where people who are interested in doctoral writing can come together to share information, resources, ideas, dreams (perhaps even nightmares!) in a spirit of building knowledge and skills around higher degree research writing."

Patter (<http://patthomson.wordpress.com>)

A blog on academic reading and writing written by Pat Thomson, Professor of Education in the School of Education, The University of Nottingham.

Thesis Whisperer (<http://thesiswhisperer.com>)

A weekly blog on all things related to the thesis - very useful for students and supervisors.

6. Administrative Matters

6.1 Expected workload

At UNSW, the normal workload expectations of a student are 25-30 hours per session for each unit of credit, including class contact hours, preparation and time spent on all assessable work.

As part of completing your first year of research and passing your first review – confirmation – it is expected that all UNSW research students will prepare a literature review and a detailed research proposal and give an oral presentation of their research project proposal. This course provides you with the opportunity to be informed about these texts and receive preliminary feedback on your written work so you can make improvements in consultation with your supervisor(s) before the confirmation review.

6.2 Rules

Students should read the University Calendar or Student Guide for details of University Rules and special considerations <http://www.handbook.unsw.edu.au/general/2015/SSAPO/GeneralRules.html?StudyLevel=Postgraduate>.

Students are reminded that the University regards academic misconduct as a very serious matter. Unauthorised material must not be taken into a test or examination. Any work submitted for assessment must be entirely the student's own work (see 6.3 also). The penalty for any suspected academic misconduct ranges from zero mark for the assignment or exam involved, through failure of the subject, to expulsion from the University. If absent from an examination, class test or practical, students must submit written documentation to the University, via the Student Centre in the Chancellery.

If a student is unable to submit on time due to illness or other legitimate reason, then a brief written explanation must be given to the lecturer for consideration as soon as is feasible. In some cases the lecturer may grant an extension to the submission date provided contact was made **before** the due date. In some cases the lecturer will ask for an email letter of support from the supervisor before approving the request.

6.3 Plagiarism (part of Academic and Research Integrity)

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 work, or knowingly permitting it to be copied. This includes 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.†

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

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

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at <https://student.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.

In this course [GSOE9400] an educative response is taken by tutors and lecturers. A student who plagiarises (in the first instance) will be asked to resubmit the work with corrections and such students are also encouraged to avail themselves of Learning Centre Services and resources for help in this matter . Continued plagiarism in subsequent assignments will result in referral to the Associate Dean (Research & Training) for the Faculty of Engineering and/or the Dean of the Graduate Research School and the student's name may be entered on the UNSW plagiarism database.

6.4 Grievances

In the first instance all grievances should be discussed with the lecturer/supervisor. If the problem cannot be resolved, students should contact their School's Grievance Officer in writing. See these links for information on UNSW grievance procedures:

<http://www.gs.unsw.edu.au/policy/documents/studentcomplaintproc.pdf>

<http://www.gs.unsw.edu.au/policy/documents/staffcomplaintproc.pdf>

6.5 Course evaluation and development

There are always some things that will need to improve and that we will need to know about. If you don't tell us, no-one will. There will also be a formal student evaluation at the end of the course.

6.6 Student equity and diversity

Students who have a disability that requires some adjustment in their learning and teaching environment are encouraged to discuss their study needs with the course convener prior to, or at the commencement of, the course, or with the Student Equity Officers (Disability) in the Student Equity and Diversity Unit (9385 4734). Information for students with disabilities is available at

<http://www.studentequity.unsw.edu.au>