Course Outline

MATS5001/2/3

Thesis A/B/Advanced

Materials Science and Engineering

Sci ci ci ci eering

1. Staff

Position	Name	Email	Consultation times and locations	Contact Details
Course and Thesis Convenor	Dr Kevin Laws	k.laws@unsw.edu.au	Room 301, School of Materials Science and Engineering (Building E10), by appointment	Phone: 9385 5234

2. Course information

Units of credit: 18, 6 per term

ENTRY POINT: Term 1

Pre-requisite(s):

Timetabling website: http://timetable.unsw.edu.au/2020/MATS5001.html

Teaching times and locations: Professional Communication and Presentation timetable

Term 1

	Lecture
Day	Tuesday
Location	
Time	15:00 - 18:00
Weeks	1-10

2.3 Course learning outcomes (CLO)

At the successful completion of this course you (the student) should be able to:

1. Understand and apply advanced materials concepts and knowledge to analyse and solve problems in the discipline of materials science and engineering.
2. Effectively plan and execute project-based engineering work including the ability to work independently, critically evaluate scientific literature, design and perform experiments, collect and analyse data, and solve problems.
3. Effectively and professionally communicate technical/scientific information in both written and oral forms.
4. Effectively identify, use and manage information resources, computing resources, and physical resources in completing a project-based engineering work.
5. Recognise and demonstrate ethical conduct, safety management, and professional accountability.

2.4 Relationship between course and program learning outcomes and assessments

4. Course schedule and structure

4.1 Professional Communication and Presentation Component

This course consists of 30 class contact/lecture hours in Weeks 1-10 of Term 1 for the Professional Communication and Presentation component. This part of the course is worth 20% of the final course mark. Students will make oral presentations of their literature surveys at the end of Term 1. No formal lectures will be given in Terms 2 or 3. Students will complete an oral presentation of their completed project at the end of Term 3.

	Term 1 Professional Communication and Presentation	
Week	**Topics**	**Activity**
1		

4.2 Research Project/Thesis Component

Students are required to complete a Project Management Plan, Safety Training and a Literature Survey in Term 1. Students are also encouraged to have completed essential laboratory inductions, WHS and Risk Assessments related to their project within Term 1. There is no formal attendance for laboratory and thesis work and all work is self-directed. Students are encouraged to start laboratory work as soon as possible (T1). Students are expected to commit to at least 120 hours of non-class contact hours to complete the research project and associated assessment tasks. Whilst students are not permitted to start laboratory work before Term 1, students are permitted to work on their research projects during Term breaks. Students are encouraged to consult regularly with their supervisors in order to ensure satisfactory progression. Students are required to submit a Thesis Progress Report signed by student and supervisor outlining progress, delays against the project plan and anticipated tasks remaining in Week 2 of Term 3. All experimental work, analysis and thesis write-up is to be completed and submitted by Week 10 of Term 3.

	Term 1

5. Assessment

5.1 Assessment Tasks & Milestones

The Professional Communication and Presentation component carries 20% of the course weighting. Assessment for this section is based on the following:

Presentation 1	(12 minutes)	8%
Presentation 2	(17 minutes)	12%

The research project/thesis component of the course carries a weight of 80% of total marks. Assessment is on the basis of the written work submitted. Please refer to the section below for details of the assessment and to the following section for expected content of the Honours Thesis. Unless otherwise stated, all work is to be submitted online to the MATS5001/2/3 Moodle site. Late work will attract penalties. The detailed assessment tasks related to the thesis are explained below. Students are encouraged to note the explanations below.

All Honours theses must be the student's own work. All references should be properly cited, and any plagiarism is forbidden in all parts of the thesis. (see Academic Honesty and Plagiarism Rules set out in this document). All theses will be run through an academic plagiarism-checking program. Any such academic misconduct could result in serious consequences in the assessment of the thesis.

Assessment task	Description	Weight	Due date
Seminar Presentation 1:	At the end of T1, students are required to give a seminar presentation (12 minutes) based on their written literature survey and project proposal, and answer questions on their presentation. Each seminar is graded by the student's supervisor, the course coordinator, and one independent academic from the School.	8%	TBA
Project management plan:	Students are required to submit a project management plan for the Honours Project covering the following elements: executive summary describing the project to be undertaken and its scope; goals of the project; detailed project planning; resource allocation; budgeting and cost estimation; scheduling; monitoring and project control; project auditing; and project termination.	5%	Week 4

	conclusions. The seminar presentation is graded by the student's supervisor, the course coordinator, and one independent academic from the School.		
Honours Thesis Dissertation:	The Honours thesis dissertation is the major piece of written work submitted at the end of the 18UOC research project.		

5.2 Assessment criteria and standards

Seminar Presentation 1 & 2

Assessment for Presentation Skills for Materials Technology Component

This section carries 20% weight of the final mark. C.C. Sorrell 2019

MATS5001/2/3 MATERIALS SEMINAR

ASSESSMENT FORM

Name of Speaker _____

MATS5001/2/3

Presentation Skills for Materials Technology

SUPERVISOR'S ASSESSMENT FORM

Name of Speaker _____

Subject of Thesis _____

Date _____

Name of Assessor _____

TECHNICAL CONTENT (20% of Total)

Choose ONE Option	Excellent	Good	Fair	Poor	No Opinion
In terms of the suitability for conference presentation:					
1. The quality of the information presented was:	☐	☐	☐	☐	☐

Project Management Plan

This section carries 5% weight of the final mark.

Due: 5:00 pm, Friday, Week 4, Term 1

Submission: Upload to MATS5001/2/3 Moodle course site.

Coversheet: Coversheet (downloadable from the Moodle course site) must accompany the submitted plan, which must be signed by the academic supervisor to the effect that the plan is reasonable in terms of academic scope as well as the available time and resources.

Late Penalty: Work submitted after the deadline will attract a penalty of 10 mark of the Project Management Plan per day late

Literature Survey

This section is a prerequisite for the continuation to Term 2 of the project.

Due: 5:00 pm, Friday, Week 10, Term 1

Submission: Upload a high-resolution pdf file of the Literature Survey and fronted by a signed coversheet to the MATS4100 Moodle course site.

Formative Assessment Sheet: A Literature Survey Formative Assessment Sheet must accompany the submitted Literature Survey, which must be filled and signed by the academic supervisor to the effect that the Survey is complete, of high standard and finished.

Late Penalty: Work submitted after the deadline will attract a penalty of 2 marks deducted from the total Honours Thesis Dissertation mark per day (or part thereof) late. Submission of the Literature Survey is a prerequisite to commencement of Term 1 of the project.

Formative Assessment: The Literature Survey is a Formative Assessment for the purpose of providing feedback about students' progress to the student, no formal mark is given to the literature survey at this time.

A satisfactory assessment must be achieved by the student, confirmed by the project supervisor on the accompanying Literature Survey Formative Assessment Sheet using a standardised rubric to assess the following elements: Establishment of the Project Outline, Formatting, Structure & Referencing and Technical Content. Failure to complete, student will be required to show cause for continuation to Term 1.

Rationale: The aim of this task is to thoroughly familiarise the student with their intended research area, project-specific experimental methodologies/techniques and related content prior to starting laboratory work. This aids in the early development of understanding your thesis topic, assisting with analysis and discussion sections later in the thesis. It also ensures students have a satisfactory document format style, are correctly citing the work of others and are providing quality and relevant Figures, Tables and Information prior to completing the thesis write-up. In addition, a large body of work has been completed early in the thesis process.

It is understood that over the duration of the thesis, research and results can alter the direction of the thesis against the original plan, and the literature review in your final thesis submission may be an altered version of this initial submission.

Layout: This should be 5000-5500 words and a maximum of 20 pages in length. It should be comprehensive but should be strictly confined to issues, which are highly relevant to the thesis topic. A sufficient amount of information should be provided so that an adequate general background to the thesis topic is given. The Literature Survey should be up-to-date, it should be accurate, and it should be properly referenced (Refer to Academic Honesty and Plagiarism Rules set out in this document). Most importantly of all, it should be analytical in nature. That is to say the findings, interpretations and opinions of other writers should be compared; conflicts and/or agreements should be identified; gaps in knowledge or understanding should be pointed out. Do not pad the Literature Survey with material that is irrelevant or of peripheral interest to the thesis topic.

The Literature Survey is written for professionals. It must not be too basic. Instead it should be written on the premise that the re 597.06 0 595.02 841.98 relm

Literature Survey Formative Assessment Sheet

Name of Student:

Subject of Thesis:

Course:

	Poor	Needs Work	Fair	Good	Excellent
PROJECT OUTLINE					
1. The establishment of the project aims was:					
2. The establishment of the project field and scope was:					
FORMATTING, STRUCTURE & REFERENCING					
3. The extent of referencing in reproduced Figures, Tables was:					

Thesis Progress Report ï MATS5001/2/3 (18 UoC)

Student: _____

Thesis Title: _____

(1)

Honours Thesis Dissertation

This section carries 75% weight of the final mark.

Due: 5:00 pm, Friday, Week 10, Term 3

Submission: Upload a high-resolution pdf file to the MATS5001/1/3 Moodle course site.

Late Penalty: Work submitted after the deadline will attract a penalty of 10% deducted from the Honours Thesis Dissertation mark per day (or part thereof) late.

Marking: Examined by the thesis supervisor and one confidential examiner nominated by the School.

The Thesis is marked using a standardised rubric with marks being awarded for the following elements:

1. Quality of Abstract; English expression and spelling; Thesis formatting & general impression.
2. Introduction and Literature Survey Chapters: level of presentation, extent and relevance; critical assessment of the literature; referencing; establishment of project aims.
3. Experimental Procedure: completeness and clarity of experimental outline.

agreements should be identified; gaps in knowledge or understanding should be pointed out. Do not pad the Literature Survey with material that is irrelevant or of peripheral interest to the thesis topic.

The Literature Survey is written for professionals. It must not be too basic. Instead it should be written on the premise that the reader should be familiar with the broad technical area of the thesis discipline but that he or she may be unfamiliar with the specific thesis topic and relevant terminology.

The number of references used in the Literature Survey depends on the thesis topic. Certain thesis topics may not have been extensively studied in the past and, as a consequence, the Literature Survey will be relatively brief (yet still comprehensive).

A Literature Survey must lead to conclusions if it is to be of any use. These conclusions in turn permit the author to formulate and define the specific project aims.

4. Experimental Procedure

This chapter should be a maximum of 4 pages in length. This section should begin by presenting an experimental plan that will answer the questions raised in the Literature Survey and, hence, achieve the project aims. An Experimental Plan is a very important part of the thesis, although it is usually rather brief.

A brief but concise description of the experimental procedure should then be presented. The Experimental Procedure should be descriptive to the point that another trained scientist or engineer would be able to repeat the experiments or measurements. It must clearly state the analytical methods used (a theoretical background of the analytical methods is not necessary). It must also specify the variables, which are being explored and state over what range of values.

Experiments and/or analyses conducted off-campus during summer employment (e.g., during industrial training) must be identified as such.

5. Results

This chapter should be 2000-2800 words, 9-12 pages in length. This chapter should be brief but complete. Logical organisation is important so as to achieve brevity. Appropriate use must be made of graphs and/or tables in order to achieve condensation. The use of correct units, scales, magnifications and the specification of errors are, of course, essential.

Results obtained during summer employment (e.g., during industrial training) must be identified as such.

6. Discussion

This chapter should be 2000-2800 words, 9-12 pages in length. This chapter is of crucial importance and much of the intellectual content of the thesis will be found within it. The results will have to be interpreted, that is, reasons for the observed behaviour, patterns, correlations, etc. must be advanced and evaluated. Such interpretation will commonly require the use of the information or data presented in the literature survey. If possible, predictions should be made on the basis of any models advanced.

The Discussion must place the results within the context of information summarised in the Literature Survey. Most significantly of all, the findings must be used in answering the questions posed by the project, that is, in achieving the project aims.

To meet the various requirements, a good discussion will lead in a logical way to the conclusions with which the thesis will end.

7. Summary and Conclusions

This Chapter should be no more than four pages in length. It should summarise both the results and their ramifications. This section represents a brief overview of the findings and their

Honours Thesis Dissertation Marking Criteria

This section carries 75% weight of the final mark.

Student: _____

Thesis Title: _____

Examiner: _____ Signature: _____

			Adj. Mark
Abstract, Thesis Format and Presentation			
1. Quality of Abstract	/20		
2. English expression and spelling	/10		
3. Thesis formatting & general impression	/10		
Mark:	/40	_____	/10
Introduction and Literature Survey Chapters			
1. Level of presentation, extent and relevance	/10		
2. Critical assessment of the literature	/10		
3. Referencing	/10		
4. Establishment of project aims	/10		
Mark:	/40	_____	/15

ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and **plagiarism** can be located at:

- The *Current Students* site https://student.unsw.edu.au/plagiarism**,** and
- The *ELISE* training site http://subjectguides.library.unsw.edu.au/elise/presenting

The *Conduct and Integrity Unit* provides further resources to assist you to understand your conduct obligations as a student: https://student.unsw.edu.au/conduct.

7. Readings and resources

Prescribed:

Students are required to purchase from the UNSW bookstore a workbook that will be used as an extensive source of reference material for the professional communication and presentation component by Professor Sorrell.

Recommended:

Your supervisor may recommend reading and resources that relate to your project.

8. Administrative matters

School Office: Room 137, Building E10 School of Materials Science and Engineering
School Website: http://www.materials.unsw.edu.au/
Faculty Office: Robert Webster Building, Room 128
Faculty Website: http://www.science.unsw.edu.au/

9. Additional support for students

- The Current Students Gateway: https://student.unsw.edu.au/
- Academic Skills and Support: https://student.unsw.edu.au/academic-skills
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