

# PROC 4001 ADVANCED MATERIALS TOPICS

**Credit Points** 10

**Legacy Code** 301416

**Coordinator** Leigh Sheppard ([https://directory.westernsydney.edu.au/search/name/Leigh Sheppard/](https://directory.westernsydney.edu.au/search/name/Leigh%20Sheppard/))

**Description** Advancements in materials have underpinned technological development since the earliest days of human civilisation. As the challenges of the 21st Century emerge, the development of advanced materials will undoubtedly prove crucial for achieving sustainable solutions. This subject is a research-led learning experience for students whereby advanced materials researchers from WSU and beyond will deliver a series of real-world case studies on their research. Students will be challenged to assess these different material contexts and respond to hypothetical problems by performing critical reviews, in-depth analyses and presenting expert recommendations.

**School** Eng, Design & Built Env

**Discipline** Materials Engineering

**Student Contribution Band** HECS Band 2 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 4 subject

## Learning Outcomes

On successful completion of this subject, students should be able to:

1. Critically assess peer reviewed scientific literature synthesising highly technical material from multiple sources
2. Identify the advantages and limitations of advanced materials when applied to specified applications
3. Determine appropriate research designs, methodologies, and analysis that will address a research question/hypothesis effectively.
4. Communicate research and present recommendations in an appropriate written and oral scientific format
5. Work collaboratively to address technical problems

## Subject Content

1. History of advanced materials and impacts on society
2. The process of undertaking advanced materials research
3. Techniques for processing and characterising advanced materials
4. Advanced materials in local and global industries
5. Case Studies on specific advanced materials research topics
6. Challenges and opportunities in advanced materials
7. Guest Lecturer: Talk with industry professionals

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Type	Length	Percent	Threshold	Individual/ Group Task	Mandatory
Literature review	2000 words	30	N	Individual	

Literature review	2000 words	30	N	Individual
Proposal	2500 words (group report)	30	N	Both (Individual & Group)
Presentatio	10 minutes presentation (group and individual parts)	10	N	Both (Individual & Group)

Teaching Periods

## Spring (2025) Penrith (Kingswood)

**Hybrid**

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View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=PROC4001\\_25-SPR\\_KW\\_3#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=PROC4001_25-SPR_KW_3#subjects))

## Parramatta City - Macquarie St

**Hybrid**

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