



Course Outline

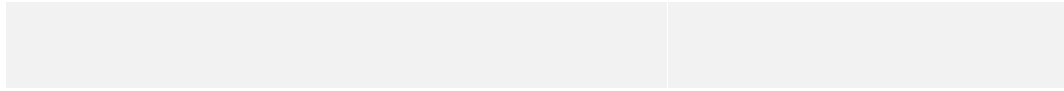
MATS1192

Design and Application of Materials in Science
and Engineering

Materials Science and Engineering

Science

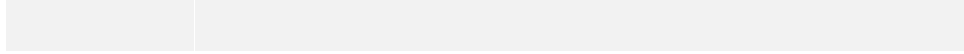
T3, 2022



To learn fundamental materials property-structure relationships pertinent to the design and application of components and to place materials science and engineering in context within the discipline and society.

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

1. Describe basic property-structure relationships in materials
2. Understand context of materials science and engineering in design and applications within society
3. Communicate above using a range of media



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Students who fail to achieve a score of at least 40% for the final exam but achieve a final mark >50% for the course, may still be awarded a UF (Unsatisfactory Fail) for the course.

Please refer to the UNSW guide to grades: <https://student.unsw.edu.au/grades>

UNSW operates under a Fit to Sit/ Submit rule for all assessments. If a student wishes to submit an application for special consideration for an exam or assessment, the application must be submitted prior to the start of the exam or before an assessment is submitted. If a student sits the exam/ submits an assignment, they are declaring themselves well enough to do so. Information on this process can be found here: <https://student.unsw.edu.au/special-consideration>. Medical certificates or other appropriate documents must be included. Students should also advise the lecturer of the situation.

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is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits honesty, trust, fairness, respect, responsibility and courage.¹ At UNSW, this means that your work must be your own, and others' 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 can be located at:

- x The *Current Students* site <https://student.unsw.edu.au/plagiarism>, and
- x 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>.

Some recommended reference material will be provided during class and electronic copies uploaded to Moodle. Textbooks available from the UNSW library which provide good information are listed below.

- Engineering Materials 1 and 2, M.F. Ashby and D.R.H. Jones, Butterworth Heinemann, 4th Edition.
- x Fundamentals of Materials Science and Engineering: An Introduction, W.D. Callister, D.G. Rethwisch, Wiley, Australia & New Zealand Edition

- The Science and Engineering of Materials, D.R. Askerland, PWS Publishing Co.
- x Fundamentals of Materials Science and Engineering: An Integrated Approach, W.D. Callister, D.G. Rethwisch, Wiley, 4th Edition
- x Introduction to Materials Science for Engineers, J.F. Shackelford, Maxwell Macmillan.
- x Principles of Materials Science and Engineering, W.F. Smith, McGraw-Hill. Engineering Materials and Their Applications, R.A. Flinn and P.K. Trojan, Haughton.
- x Materials for Engineering, L.H. Van Vlack, Addison-Wesley.
- x Materials for the Engineering Technicians, R.A. Higgins, Edward Arnold.
- x Materials Science – A Multimedia Approach (electronic resource), John Russ, PWS Publishing Co.
- x R.E. Smallman and R. Bishop, Metals and Materials, 1996

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/>

¹ International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013.

x The Current Students Gateway: