



The University of Sydney

## School of Geosciences

# GEOS2124 Fossils and Tectonics

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**Classes:** Lectures Monday and Wed 10:00 in Madsen Lab Room 332  
Practical Mon 13:00-15:00 or  
Mon 15:00-17:00 in Madsen PC Lab 302

### Course Synopsis & Aims

This palaeontology, stratigraphy and tectonics Unit of Study is aimed at geoscientists, archaeologists, biologists, marine and environmental scientists who use a combination of structural data, fossils and/or stratigraphic data to determine rock/sediment ages, environments or structural histories. It provides an overview of fossil biodiversity, concentrating on invertebrate animals but also covering vertebrates, plants and micro-organisms, with an emphasis on those groups that are most environmentally or stratigraphically useful. It also provides an introduction to structural geology, and a field excursion to the Yass area provides an opportunity to learn in the field how stratigraphy, fossils and structural observations are used together to unravel the geological history of this area. The unit considers the main methods of stratigraphic correlation and age determinations, concentrating on the litho- and bio-stratigraphy but also covering the more modern techniques of chemo-, magneto- and sequence stratigraphy, as well as radiometric dating.

## **Objectives**

The learning outcome you should expect at the end of the course is a broad knowledge of the fundamental concepts in stratigraphy, structural geology and paleontology. You will gain a basic understanding of a number of different dating techniques used in geology. You will be able to recognise the major fossils groups found in the geological record, and from this be able to make interpretation about depositional environments, deformation history and the age of a sequence.

## **Assessment**

### Final Grade:

Your final grade for this course is based on 40% coursework, 40% exam and 20% field assignment.

*Coursework:* The coursework assessment is derived from assignments based on the practical exercises (40%) and the field assignment (20%) is based on the Yass field trip, to be handed in at various stages through the semester.

*Exam:* The exam will be 2 hours long and cover all of the lecture material presented during the semester. It will be held during the November examination period.

### Important notices about assessment:

Late work will incur a 5% penalty for every 24 hours after the submission deadline. Assessment of penalty will begin immediately after the deadline and each day of weekends and public holidays will be counted as a 24 hr unit.

There may arise special circumstances under which students may submit work beyond the submission deadline. Students are responsible for obtaining a special consideration form and

supplying it and all the supporting evidence with the piece of assessed work.

Marks will be scaled to meet the University's policy on merit grade distribution. Distributions of merit grades in units of studies offered by Departments in the Faculty of Science are governed by a policy based on norm-referencing. For intermediate and senior units of study the allocated distributions of merit grades (acceptable ranges in brackets) are: HD=4%(2-7); HD+D=18%(12-25); HD+D+Cr=50%(36-65)

In practice this means that the number of merit grades (High Distinctions, Distinctions and Credits) are limited by the number of students enrolled in the unit of study, unless a special case can be made. When grades returned by unit executive officers fall outside these guidelines, marks within the unit of study may be scaled to fit the guidelines.

Circumstances in which special cases will be recognised for units of study include;

- Units with a disproportionately high number of advanced students
- Units with a disproportionately high number of students with high UAI
- Small units of study where a single student attaining a merit grade would exceed guidelines for those grades. In these cases small overshoots of grades will be accepted. The full Academic Board Resolutions can be found at: [http://db.usyd.edu.au/policy/policy\\_index.stm](http://db.usyd.edu.au/policy/policy_index.stm), then look in the index under "A" for Assessment and Examination of Coursework.

### **Required Texts/Reading List**

Textbook available from copy centre.

The following texts are recommended and are on closed reserve in Geosciences library:

Levin. 1996. Earth through time.

Doyle. 1996. Understanding fossils: An introduction to invertebrate palaeontology

Clarkson. 1998. Invertebrate palaeontology and evolution.