***Welcome to GEOS3171 Earth Structures in T3, 2020***

## Class Timetable:

| **Day** | Monday | Wednesday | Thursday |
|---|---|---|---|
| **Class** | Lecture | Lecture | Laboratory |
| **Time** | 2 - 3 PM | 1-2 PM | 10 - 1 PM |
| **Location** | Live online via course Moodle page | Live online via course Moodle page | In person! D26 Ground Floor Lab 2 |

## Course Description:

Most regions of the Earth's crust have been deformed over many millions of years, resulting in a complex three dimensional form. In Earth Structure you will learn to unravel this history. This course will demonstrate how large scale regional structures are inferred or measured from surface outcrop mapping.

## Course Aims:

This course is aimed to enable students to develop comprehensive understanding of structural geology and its uses. This will be achieved through the investigation of different types of geological structures, their features, formational processes and environments, deformational history, structural evolution and geophysical data. You will learn how to identify, measure and analyse structures to appreciate how they developed and apply theory to solve real-world problems.

| Assessment Task | Due date | Value (%) |
|---|---|---|
| Assessment 1: Coastal joints | | **5** |
| Assessment 2: Stratigraphy | | **5** |
| Assessment 3: Stereonets | | **10** |
| Assessment 4: Bermagui presentations | | **5** |
| Assessment 5: Lecture content | Week 8 | **15** |
| Assessment 3: Bermagui Field Report | Final week | **30** |
| Assessment 4: Final Exam (3 hours) | Exam period | **30** |
| **TOTAL** | | **100** |

| Week | Lecture 1 | Lecture 2 | | Lab (3 hours) | Assessments |
|---|---|---|---|---|---|
| O-WEEK | No classes | | | | |
| Week 1 14.9-19.9 | Introduction to course | Primary Structures+joints | | **# Field trip: Coogee** | |
| Week 2 21.09-25.09 | Faults | Folds | | All about Stereonets | Quiz 1: Fractures |
| Week 3 28.09-2.10 | Foliations | Lineations | | Introduction to map interpretation and analysis | Lab Ex 1: Stereonets |
| Week 4 5.10-9.10 | Shear zones and kinematic indicators | Fold interference | | Bermagui preparation lecture, Cross sections | Quiz 2: Cross-sections |
| Week 5 12.10-17.10 | Stress and Strain | Structural associations | | Fault interpretation | Lab Ex 2: Structure contours |
| Week 6 19.10-23.10 | **# Bermagui Field Trip** = 6 days incl. 2 days travel time | | | | Bermagui Presentations |
| Week 7 26.10-30.10 | Compressional regimes part 1 | Compressional regimes part 2 | | Fold interpretation | Quiz 3: Wilcox strain ellipse |
| Week 8 2.11-6.11 | Extensional regimes | Diapirs and diapirism | | Strain analysis | Lab Ex 3: balanced cross-sections |
| Week 9 9.11-13.11 | P-T-t paths | Gold in shear zones | | Map analysis | Quiz 4: lecture content |
| Week 10 16.11-20.11 | "What's that structure?" | Study session (optional) | | Group Presentations, Revision and Review session | Group Presentations; Bermagui Report |
| STUVAC | No classes<br>(Option to use Mon and Tues for class catch up) | | | | |
| EXAM PERIOD | No classes | | | | Final Exam |