

Sedimentology

Earth Sciences 402

Section: D100

Term: 2011 Fall

Instructor: Dr. James MacEachern

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Discussion Topics: General:

An advanced treatment of facies characteristics and interpretation, facies model concepts, applications of ichnology to depositional environment interpretation, and genetic stratigraphic applications to facies analysis. Course content will include terrestrial, marginal marine and marine environments, in both siliciclastic and carbonate depositional settings. The development of effective field and subsurface criteria for the interpretation of the sedimentary record will be stressed. The ethological (behavioural) classification of biogenic structures, as well as their applications to the ichnofacies concept and to paleoenvironmental interpretation of the sedimentary record will be considered. Students will examine the utility of facies analysis in the various genetic stratigraphic frameworks and the viability of reconstructing the depositional history of sedimentary successions. Relative sea level changes and their effects on deposition will be discussed in relation to the preserved sedimentary record.

Course Topics:

1. Facies Characteristics and Paleoenvironmental Interpretation.
2. Facies Model Concepts for Siliciclastic and Carbonate Successions.
3. Ichnology and Sedimentary Facies Analysis.
4. Genetic Stratigraphy and Relative Sea Level Changes.

Course Organization:

One 2 hour lecture/seminar per week.

One 3 hour laboratory session per week. Some field trips.

Note: One field trip is to Salt Spring Island for a weekend and is estimated to cost ~\$200.00 including food, transport and accommodation.

Grading: 1. Seminars 10%

2. Term Paper 15%

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3. Field Trip Reports 10%

5. Laboratory Project 35%

6. Oral Final Exam 30%

Required Texts: James, N.P, and Dalrymple, R.W.; 2010; Facies Models 4; Geological Association of Canada; ISBN 978-1-897095-50-8

Recommended Texts: Reading. H.G., 1996, Sedimentary Environments and Facies: Processes, Facies and Stratigraphy, 3rd edition: Blackwell Scientific Publishing, 688p.ISBN 978-0-632-03627-1

Materials/Supplies: None.

Prerequisite/Corequisite: EASC 201, and EASC 302 or permission of the instructor.

Notes: None.

This outline is derived from a course outline repository database that was maintained by SFU Student Services and the University's IT Services Department. The database was retired in 2014 and the data migrated to SFU Archives in 2015.