CAMOSUN COLLEGE	***School of Arts & Science*** ***CHEMISTRY AND GEOSCIENCE DEPARTMENT*** **GEOS 240-1** **Sedimentary Geology** **Semester/Year: 2007W**

COURSE OUTLINE

1. Instructor Information

(a)	Instructor:	Dr. Tark Hamilton		
(b)	Office Hours:	M-T-Th-F: 11:30-12:20		
(c)	Location:	F344A		
(d)	Phone:	250-370-3331	Alternative Phone:	
(e)	Email:	hamilta@camosun.bc.ca		
(f)	Website:	Under construction		

2. Intended Learning Outcomes

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Upon completion of this course the student will be able to:

1. Describe the three major sediment types, their settings and how they provide environmental records, including clastic sediments, chemical sediments, and biological sediments.
2. Describe common sedimentary minerals and their roles as matrix and cements and analyse the significance of sedimentary structures, fossils and trace fossils.
3. Identify common sediments and the roles of weathering, erosion, transport, deposition in their genesis and relate particle size of sediments to the energetics of sedimentary transport.
4. Utilize the petrographic microscope for the identification of sedimentary minerals and textures.
5. Relate suites of sedimentary rocks to adjacent and sequential environments taking into account effects of physics, chemistry and biology.
6. Describe the stratigraphic and depositional effects of changing base level or sea level with reference to the stratigraphic principles, facies, time assignments and correlation tools of: biostratigraphy, magnetostratigraphy and lithostratigraphy.
7. Describe several types of sedimentary basins and their assemblages of sediments and compare and contrast geophysical and well-logging exploration techniques related to basin analysis.
8. Identify different tectonic settings using lithologies and sediment properties.
9. Compare sedimentary resources, their settings and uses including: aggregates, coal, sedimentary iron formations, sediment hosted: metals deposits (uranium, Au, Pt, Sn, Ti placers), groundwater and hydrocarbon reservoirs.

3. Required Materials

(a)	Texts	"Sediments and Basins" Andrew Miall 2006 $35 required

(b)	Other	"Ancient Environments and the Interpretation of Geologic History" 3rd ed. Lynn Fichter and David Poche. Out of print. Lab copies available for loan only. Do not mark in books or deface pages. "AGI Laboratory Manual in Physical Geology" by Busch and Tasa (From Geos 100) for mineral and rock identification and selected exercises, limited ***in-lab-use-only*** loaner copies available

4. Course Content and Schedule

(Can include: class hours, lab hours, out of class requirements and/or dates for quizzes, exams, lectures, labs, seminars, practicums, etc.)

Prerequisite: GEOS 100 or 101 or equivalent course
Lectures: M-T-F: 10:30-11:20, ***Lab:*** 8:30-11:20,
2X 1-day ***weekend field trips*** & 1 2 day weekend field trip shared cost approx. $125

Schedule: Approximately 1 Chapter in text and lab manual per week
Week 1**:** Miall Ch 1 & 2, **Rock Lab**: Review of Rock Types & minerals p.9-37 in AE & selected questions (bring Busch and Tasa to review minerals & rocks) 47-83 in AGI
Week 2**:** Miall Ch 3, **Clastic Sediment Lab**: Introduction to Classification of Sediments esp. terrigenous clastics, A&E pp.38-56 & AGI pp.111-118
Week 3**:** Miall Ch 7, **Sedimentation Lab** off book exercise on: Viscosity, particle size, shape and sedimentation:
Week 4**:** Miall Ch 4, 5, **Carbonate & Time Lab** A&E pp.57-68 carbonates and biogenic, AGI pp.116-120 Lab Geological Time Review from AGI pp.151-166, Geological Time, Microfossils, Biostratigraphy, & Sedimentation Rates (not in lab books)
***Week* 5:** Review, **Exam 1** Tues Feb 6 and no lab due to reading break but (*½ day field trip arranged between Feb 8-11)*
***Week* 6:** Miall Ch 6, **Strip Log Lab** A&E Depositional Environments and Strip Logs pp.69-88
***Week* 7:** Miall Ch 6 & 8, **Facies Lab** A&E pp. 89-118 Facies concept, strip logs & maps, AGI 125-132
***Week* 8:** Miall Ch 9 & 10, **Mapping Lab** A&E pp.119-154 Sequence Stratigraphy and Mapping
***Week* 9:** Miall Ch 9 & 10 cont'd, **Sequence Lab** A&E pp.185-200 Eustasy and Sequence Theory + AGI 288-290 Rising Seas
***Week* 10:** Review, Exam 2 Tues March 13, **Seismic Lab**: Seismic Reflection Interpretation off book
***Week* 11:** Miall Ch 11, **Sedimentary Tectonics Lab** A&E pp.155-184 Sedimentary Tectonics
***Week* 12:** Miall Ch 13, **Plate Tectonics Lab** A&E pp.1-14 Basins, Rocks, History and Tectonic Processes
***Week* 13:** Miall Ch 12, Report Presentation and Review
***Week* 14:** Report Presentation and Review

5. Basis of Student Assessment (Weighting)

(Should be linked directly to learning outcomes.)

(a)	Assignments	Labs: 25%

(b)	Field Trips	5% for attendance and short report/questionnaire ½ day arranged **During Reading Break Feb 8-11 &** 2 days arranged during **Easter Weekend April 6-9**
(c)	Exams	**Exam 1**: Tues **Feb.6** in class 15% & **Exam 2**: Tues **March 13** 15% in class, **Final Exam before April 24** as scheduled by registrar, 25%
(d)	Project	**Application Paper** to be approved by week 4 on Sedimentary Geology and a Resource, Paleoclimate or Environmental Problem 15% **Due Monday April 2** for review & subsequent presentation

6. Grading System

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Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
95-100	A+		9
90-94	A		8
85-89	A-		7
80-84	B+		6
75-79	B		5
70-74	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at **camosun.ca** or information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	*Compulsory Withdrawal:* A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy

E-1.5 at **camosun.ca** for information on conversion to final grades, and for additional information on student record and transcript notations.

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College calendar, at Student Services or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**.
It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services and on the College web site in the Policy Section.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED