UNIVERSITY OF CALGARY
DEPARTMENT OF GEOSCIENCE
COURSE OUTLINE

1. Course: GEOLOGY 541 – ADVANCED STRUCTURAL GEOLOGY

Lecture Section:	L01	MWF	10:00-10:50	SA 235	WINTER 2014
Laboratory Sections	B01	T	11:00-13:50	ES 242	
	B02	T	14:00-16:50	ES 242	

Instructor:	Rob Taerum	ES 150	rltaerum@ucalgary.ca
TA:	Danielle Kondla	ES 107	danielle.kondla@live.ca

Textbooks: Simony & Spratt "Structural Methods, 2003; Marshak & Mitra "Basic Methods of Structural Geology" will help with labs. Recommended reference books include:

Davis, Reynolds, and Kluth (2012) *Structural Geology of rocks and regions*

Lisle & Leyshon (2004) *Stereographic projection techniques for geologists and engineers*

The course website contains handouts for labs, lectures, as well as other resource material that you will find useful.

Geoscience Department ES 118; (403) 220-5841; geoscience.ucalgary.ca

2. PREREQUISITE(S): Geology 341 and completion of at least 15 full-course equivalents

ANTIREQUISITE(S): Credit for both Geology 541 and 641 will not be allowed.

See section 3.5.C in the Faculty of Science section of the online Calendar (http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html)

3. **GRADING**: The University policy on grading and related matters is described in "Academic Regulations, sections F.1 and F.2" of the online University Calendar (**http://www.ucalgary.ca/pubs/calendar/current/f-1.html** and **http://www.ucalgary.ca/pubs/calendar/current/f-2.html**) In determining the overall grade in the course the following weights will be used:

Laboratory Assignments (8)	10%	(due when indicated)
Midterm Lab Examination	30%	(175 minutes, **March 11**, in your scheduled lab period)
Final Lab Examination	30%	(175 minutes, **April 8**, in your scheduled lab period)
Term Project (2 parts)	30%	(due when indicated)

The Midterm and Final lab examinations will be open book with calculators allowed. They are intended to test for comprehension of material and problem-solving abilities, not memorization of definitions and formulas. Each piece of work (lab assignment, project report, lab midterm and final examination) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade. The conversion between grade points and letter grades is given below.

Letter Grade	Percent	Letter Grade	Percent
A+	95-100	C+	64-<68
A	89-<95	C	60-<64
A-	84-<89	C-	56-<60
B+	78-<84	D	50-<56
B	73-<78	F	0-<50
B-	68-<73		

4. **Missed Components of Term Work**. The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in section 3.6: **http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html**. It is the student's responsibility to familiarize himself/herself with these regulations. See also **http://www.ucalgary.ca/pubs/calendar/current/e-3.html**.

5. Dates and times of class exercises held outside of class hours: None

REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME-ACTIVITY. If you have a clash with this out-of-class-time-activity, please inform your instructor as soon as possible so that alternative arrangements may be made for you.

Department Approval: ORIGINAL SIGNED **Date: January 03 2014**

6. **EXAMINATION POLICY**: No electronic aids (eg. cell phones, tablets, computers, PDAs) will be allowed during writing of any exams. Calculators, notes, previous assignments, etc. will be permitted to answer questions on exams.

   Students should also read the Calendar, Section G, on Examinations: **http://www.ucalgary.ca/pubs/calendar/current/g.html**.

7. In this course, the quality of the student's writing in laboratory assignments and the Term Project will be a factor in the evaluation of those reports. See also **http://www.ucalgary.ca/pubs/calendar/current/e-2.html**.

8. OTHER IMPORTANT INFORMATION FOR STUDENTS:

(a) ACADEMIC MISCONDUCT (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under K. Student Misconduct (**http://www.ucalgary.ca/pubs/calendar/current/k.html**) to inform yourself of definitions, processes and penalties

(b) ASSEMBLY POINTS in case of emergency during class time. Be sure to FAMILIARIZE YOURSELF with the information at http://www.ucalgary.ca/emergencyplan/assemblypoints.

(c) ACADEMIC ACCOMMODATION POLICY. Students with documentable disabilities are referred to the following links:
Calendar entry on students with disabilities: **http://www.ucalgary.ca/pubs/calendar/current/b-1.html**
Student Accessibility Services: www.ucalgary.ca/access

(d) SAFEWALK: Campus Security will escort individuals day or night **http://www.ucalgary.ca/security/safewalk/**). Call **220-5333** for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.

(e) FREEDOM OF INFORMATION AND PRIVACY: This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPP). As one consequence**, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page**. For more information see also **http://www.ucalgary.ca/secretariat/privacy.**

(f) STUDENT UNION INFORMATION: VP Academic **Phone**: 220-3911 **Email**: suvpaca@ucagary.ca.
SU Faculty Rep. **Phone:** 220-3913 **Email:** sciencerep@su.ucalgary.ca Website **http://www.su.ucalgary.ca/home/contact.html**.
Student Ombudsman: www.ucalgary.ca/provost/students/ombuds; ombuds@ucalgary.ca 220-6420

(g) INTERNET and ELECTRONIC COMMUNICATION DEVICE Information. You can assume that in all classes that you attend, **your cell phone should be turned off**. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.

Tentative Schedule

Week	Lec #	Date	Topic	Lab
1	1	Jan 8	Course Logistics	No Lab
	2	Jan 10	Structure basics	
2	3	Jan 13	Stereonet review, minor structures	Lab #1 Review plotting & projecting of structures
		Jan 14	Lab 1	
	4	Jan 15	Term project intro	
	5	Jan 17	Faulting 1	
3	6	Jan 20	Boreholes & dipmeter data 1	Lab #2 Drill hole problems & dipmeter data analysis
		Jan 21	Lab 2	
	7	Jan 22	Faulting 2	
	8	Jan 24	Folding 1	
4	9	Jan 27	Directional cosines, contouring & statistics	Lab #3 Directional cosines & statistical analysis
		Jan 28	Lab 3	
	10	Jan 29	Folding 2	
	11	Jan 31	Structure maps	
5	12	Feb 3	Boreholes & dipmeter data 2	Lab #4 Bengston diagrams & structure contour mapping
		Feb 4	Lab 4	
	13	Feb 5	Cross-section construction & balancing	
	14	Feb 7	Cross-section construction & balancing	
6	15	Feb 10	Dip-domain modeling	Lab #5 Busk arc fold model
		Feb 11	Lab 5	
	16	Feb 12	Cross-section construction & balancing	
	17	Feb 14	Cross-section construction & balancing	
		Feb 16-23	Reading Week	
7	18	Feb 24	Structural Styles	Lab #6 Cross-section balancing
		Feb 25	Lab 6	
	19	Feb 26	Structural Styles	
	20	Feb 28	Structural Styles	
8	21	Mar 3	Mohr Circle & Stress	No Lab (complete phase 1 of project)
		Mar 4	Work on project phase 1	
	22	Mar 5	Polyphase Folds; Phase 1 Project Due @ 11:00am	
	23	Mar 7	Polyphase Folding	
9	24	Mar 10	No lecture	Lab Midterm exam
		Mar 11	Lab Midterm exam	
	25	Mar 12	Rock Mechanics	
	26	Mar 14	Critical wedge	
10	27	Mar 17	Reidle Shears	Lab #7 Polyphase folding
		Mar 18	Lab 7	
	28	Mar 19	Review midterm exam results	
	29	Mar 21	Igneous Rocks	
11	30	Mar 24	Igneous Rocks	Lab #8 Polyphase folding & ore reserves (complete phase 2 of project)
		Mar 25	Lab 8	
	31	Mar 26	Igneous Rocks; Phase 2 Project Due @ 11:00am	
	32	Mar 28	Halokinesis	
12	33	Mar 31	Recent Deformation	Lab #9 Review lab problem
		Apr 1	Lab 9	
	34	Apr 2	Modern topics	
	35	Apr 4	Modern topics	
13	36	Apr 7	Review	Lab final exam
		Apr 8	Lab Final	
	37	Apr 9	TBA	
	38	Apr 11	TBA	
14	39	Apr 14	No Lecture	