

APPLIED SCIENCE AND MANAGEMENT DIVISION

GEOL 105

3 Credit Course

Fall, 2018



COURSE OUTLINE

GEOL 105

PHYSICAL GEOLOGY

3 CREDITS

PREPARED BY: Joel Cubley, Program Coordinator DATE: July 9, 2018

APPROVED BY: Margaret Dumkee, Dean DATE: July 9, 2018

APPROVED BY ACADEMIC COUNCIL: April 2012

RENEWED BY ACADEMIC COUNCIL: February 2015



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PHYSICAL GEOLOGY

INSTRUCTOR: Lee Pigage, Ph.D.

OFFICE HOURS: By appointment

OFFICE LOCATION: N/A

CLASSROOM: Lecture: M111
Laboratory: T1090

E-MAIL: lcpigage@klondiker.com

TIME: Lecture: MW (4:00 - 5:30 pm)
Laboratory: M (1:00 - 4:00pm)

TELEPHONE: (867) 633-4742

DATES: September 5, 2018 -
December 21, 2018

COURSE DESCRIPTION

Geology 105 is an introduction to the materials that constitute the earth and the processes affecting the earth. Topics covered include atomic structure and minerals; igneous, sedimentary and metamorphic rocks; weathering, erosion and depositional processes; earth composition and structure; basic geophysics; plate tectonics; and economic geology.

PREREQUISITES

Admission to the Geological Technology, Science, Northern Science, Renewable Resource Management, or Northern Environmental and Conservation Sciences programs; and/or permission from the instructor.

EQUIVALENCY OR TRANSFERABILITY

Geology 105 has established equivalency with the following institutions:

Simon Fraser University - EASC 101
Thompson Rivers University - GEOL 1110
University of British Columbia - EOSC 110 and EOSC 111
University of British Columbia Okanagan - EESC 111
University of Fraser Valley - GEOG 1XX
University of Northern British Columbia - SCIE 1XX
University of Victoria - EOS 100
Vancouver Island University - GEOL111

LEARNING OUTCOMES

Upon successful completion of the course, students will have demonstrated the ability to

- identify and classify basic rocks and minerals in hand sample.
- use basic geoscience terminology in describing lithologies, structures and geologic processes.
- connect earth processes to earth cycles, such as the rock cycle and tectonic cycle, and define the time scales at which different cycles operate.
- apply geological and geophysical principles and concepts to solving geologic problems on a number of scales.
- describe the geologic history of a region based on field exposures, maps, cross-sections, rock samples, and photographs.

COURSE FORMAT

This course consists of two 90-minute lectures and one lab period per week. The lecture schedule included in this course outline details the major topics covered and when those topics will be presented throughout the course. Please note that this schedule will likely be modified throughout the term, as some topics may not be finished within the predicted lecture time. Laboratory exercises will be conducted in both laboratory and field settings.

ASSESSMENTS

Attendance and Participation

Students are strongly encouraged to attend all lectures and laboratory exercises. Lab exercises can be completed only during lab periods and materials may not be available outside these hours. Off-campus field exercises must be completed during the allocated time with the instructor present.

Assignments

Weekly lab exercises will be due at the start of the following lab section. In addition to these exercises, students will participate in three in-class lecture "learning

assessments" to help reinforce critical concepts. Four take-home lecture assignments will be administered over the course of the semester.

Readings from the textbook will be assigned to support lecture instruction. Students should expect to spend 1-2 hours per week on background reading, and 3-4 hours on laboratory and/or lecture assignments.

Exams

Any student who is absent from a test or exam for legitimate reasons will be eligible to write a deferred exam. Please note that excuses such as car trouble, vacation travel, oversleeping, and misreading the test schedule are not considered legitimate reasons and do not qualify the student for a deferred exam. For missed exams, the student must contact the instructor within 48 hours of the missed exam by phone or email. For missed final exams, students must contact the Chair of the School of Science. Any deferred exams will be scheduled by the Chair.

Due Dates

Lecture assignments are due at the start of lecture on the date assigned by the instructor. Laboratory assignments will be due at the start of the following laboratory period unless otherwise indicated by the instructor. Late assignments will be graded based on the following scheme: a deduction of 10% per day up until a total deduction of 50% is reached, following that, assignments must be submitted prior to the date that the instructor hands back the graded assignment (set by the instructor), unless otherwise indicated by the instructor.

Missed exams will be assigned a grade of 0% unless re-scheduling for a valid reason is approved and determined **in advance** of scheduled exam date. If there are known conflicts with exam scheduling, please see the instructor as soon as possible to discuss an alternative examination date.

EVALUATION

<i>Tests and Assignments</i>	<i>Weight</i>	<i>Dates</i>
Weekly Lab Assignments	20% (2% each)	Due at the start of each subsequent lab section.
Lab Midterm Test	10%	During scheduled lab time in the 8 th week of classes
Midterm Test*	15% (or 5%)	During lecture class time (see schedule).
Lab Final Exam	15%	During scheduled lab time in the final week of classes.
Final Exam*	20% (or 30%)	During exam period, as scheduled by registrar.
In-class Learning Assessments	10% (3.3% each)	During lecture class time (see schedule).
Take-home Lecture Assignments	10% (5% each)	
Total	100%	

The letter-grading scheme used in this course is the standard Yukon College scheme.

REQUIRED TEXTBOOKS AND MATERIALS

There is one required textbook for this course.

Tarbuck, E.J., Lutgens, F.K., Tsujita, C.J., and Hicock, S.R. 2015. Earth: An Introduction to Physical Geology (4th Canadian Edition). Pearson Higher Education, New York. ISBN 13: 9780321937018

ACADEMIC AND STUDENT CONDUCT

Information on academic standing and student rights and responsibilities can be found in the current Academic Regulations that are posted on the Student Services/ Admissions & Registration web page.

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when a student submits work for credit that includes the words, ideas, or data of others, without citing the source from which the material is taken. Plagiarism can be the deliberate use of a whole piece of work, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material according to an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Students may use sources which are public domain or licensed under Creative Commons; however, academic documentation standards must still be followed. Except with explicit permission of the instructor, resubmitting work which has previously received credit is also considered plagiarism. Students who plagiarize material for assignments will receive a mark of zero (F) on the assignment and may fail the course. Plagiarism may also result in dismissal from a program of study or the College.

YUKON FIRST NATIONS CORE COMPETENCY

Yukon College recognizes that a greater understanding and awareness of Yukon First Nations history, culture and journey towards self-determination will help to build positive relationships among all Yukon citizens. As a result, to graduate from ANY Yukon College program, you will be required to achieve core competency in knowledge of Yukon First Nations. For details, please see www.yukoncollege.yk.ca/yfnccr.

ACADEMIC ACCOMMODATION

Reasonable accommodations are available for students requiring an academic accommodation to fully participate in this class. These accommodations are available for students with a documented disability, chronic condition or any other grounds specified in section 8.0 of the Yukon College Academic Regulations (available on the Yukon College website). It is the student's responsibility to seek these accommodations. If a student requires an academic accommodation, he/she should contact the Learning Assistance Centre (LAC) at (867) 456-8629 or lac@yukoncollege.yk.ca.

THE LORENE ROBERTSON WRITING CENTRE

All students are encouraged to make the Writing Centre a regular part of the writing process for coursework. The Lorene Robertson Writing Centre is staffed by helpful writing coaches from across the College and offers one-on-one appointments to students in need of writing support.

The Lorene Robertson Writing Centre can help you:

- Get started on an assignment and focus your ideas
- Outline and plan your assignment
- Write clearly, logically and effectively
- Address specific needs and writing problems
- Revise the first and final drafts of your project
- Gain confidence in your writing

For in-person appointments, the Centre coaching office is located in the Academic Support Centre in room A2302. You can also participate in coaching appointments over the phone or online. see the Academic Support Centre schedule for English and writing support times.

LECTURE TOPIC OUTLINE

Week	Date	Lecture #	Lecture Topic(s)	Recommended Resources
1	Sept. 5	1	Course Introduction and Introduction to Plate Tectonics	Chapter 1, Chapter 12
2	Sept. 10	2	Plate Tectonics	
	Sept. 12	3	In-class Learning Assessment #1: Plate Tectonics	
3	Sept. 17	4	Minerals	Chapter 2
	Sept. 19	5	Minerals	
4	Sept. 24	6	Rocks and the Rock Cycle	Chapter 1, Chapter 5
	Sept. 26	7	Igneous Processes	Chapter 3, Chapter 4
5	Oct. 1	8	Igneous Processes	Chapter 6
	Oct. 3	9	Sedimentary Processes	
6	Oct. 10	10	Sedimentary Processes	
	Oct. 15	11	Learning Assessment #2: Rock Cycle	
7	Oct. 17	12	Metamorphic Processes	Chapter 7
	Oct. 22	13	Metamorphic Processes	
8	Oct. 24	14	Midterm Review	
	Oct. 29	15	Midterm Exam (in class)	
9	Oct. 31	16	Rock Deformation	Chapter 9
	Nov. 5	17	Rock Deformation	
10	Nov. 7	18	Geologic Time	Chapter 8
	Nov. 14	19	Geologic Time	
11	Nov. 19	20	Learning Assessment #3: Geologic Time	
	Nov. 21	21	Earthquakes	Chapter 10
12	Nov. 26	22	Introduction to Geophysics and the Earth's Interior	Chapter 10
	Nov. 28	23	Mountain building and continental frameworks	Chapter 13
13	Dec. 3	24	Energy Resources	Chapter 20
	Dec. 5,6	25	Mineral Resources	
14-15			Final Exam Period Exam to be Scheduled by School of Science	

LABORATORY ACTIVITIES

Week	Lab Activity
1	Orientation of Planar Features - Mandanna Group Field Trip
2	Structural Contours and Strike Lines
3	Outcrop Patterns, Strike Lines and Cross Section Construction
4	Identification and Classification of Minerals
5	Identification and Classification of Igneous Rocks
6	Identification and Classification of Sedimentary Rocks
7	Identification and Classification of Metamorphic Rocks
8	Classification of Folds and Faults
9	Earthquakes and Propagation of Seismic Waves
10	Well Log Interpretation

The above topics are first-order themes for weekly lab exercises. Each laboratory handout will provide a detailed introduction to the theory and techniques needed to be successful in the exercise. No laboratory exercises will be conducted during the first week of classes.