



COURSE OUTLINE

GEOL 105

PHYSICAL GEOLOGY

**90 HOURS
3 CREDITS**

PREPARED BY: _____ DATE: _____
Joel Cubley, Instructor/Coordinator

APPROVED BY: _____ DATE: _____
Margaret Dumkee, Dean

YUKON COLLEGE
Copyright July, 2015

All rights reserved. No part of the material covered by this copyright may be reproduced or utilized in any form or by any means, electronic or mechanical, traded, or rented or resold, without written permission from Yukon College.

Course Outline prepared by Joel Cubley, 8 July 2015.

Yukon College
P.O. Box 2799
Whitehorse, YT
Y1A 5K4

APPLIED SCIENCE AND MANAGEMENT DIVISION
Physical Geology
3 Credit Course
Fall, 2015

PHYSICAL GEOLOGY

INSTRUCTOR: Dr. Joel Cubley

OFFICE HOURS: MWF (10:00-10:30)

OFFICE LOCATION: T1090

CLASSROOM: Lecture: C1440
Laboratory: T1090

E-MAIL: jcubley@yukoncollege.yk.ca

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

TELEPHONE: (867) 456-8605

DATES: September 9, 2015 –
December 18, 2015

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, or Northern Science 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.

DELIVERY METHODS

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.

COURSE REQUIREMENTS

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.

Tests/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.

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 7 th week of classes
Midterm Test*	15% (or 5%)	During lecture class time (see schedule).
Lab Final Exam	15%	During schedule 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%	
Total	100%	

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

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

PLAGIARISM

Plagiarism is a serious academic offence. Plagiarism occurs when students present the words of someone else as their own. Plagiarism can be the deliberate use of a whole piece of another person's writing, but more frequently it occurs when students fail to acknowledge and document sources from which they have taken material. Whenever the words, research or ideas of others are directly quoted or paraphrased, they must be documented according to

an accepted manuscript style (e.g., APA, CSE, MLA, etc.). Resubmitting a paper 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.

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) 668-8785 or lassist@yukoncollege.yk.ca.

LECTURE TOPIC OUTLINE

Week	Date	Lecture #	Lecture Topic(s)	Recommended Resources
1	Sept. 10	1	Course Introduction and Introduction to Plate Tectonics	Chapter 1, Chapter 12
2	Sept. 15	2	Plate Tectonics	
	Sept. 17	4	In-class Learning Assessment #1: Plate Tectonics	
3	Sept. 22	5	Minerals	Chapter 2
	Sept. 24	6	Minerals	
4	Sept. 29	7	Rocks and the Rock Cycle	Chapter 1, Chapter 5
	Oct. 1	8	Igneous Processes	Chapter 3, Chapter 4
5	Oct. 6	9	Igneous Processes	Chapter 6
	Oct. 7*	10	Sedimentary Processes	
6	Oct. 13	11	Sedimentary Processes	Learning Assessment #2: Rock Cycle
	Oct. 15	12		
7	Oct. 20	13	Metamorphic Processes	Chapter 7
	Oct. 22	14	Metamorphic Processes	
8	Oct. 27	15	Midterm Review	
	Oct. 29	16	Midterm Exam (in class)	
9	Nov. 3**	-	Rock Deformation	Chapter 9
	Nov. 5**	-	Rock Deformation	
10	Nov. 10	17	Geologic Time	Chapter 8
	Nov. 12	18	Geologic Time	
11	Nov. 17	19	Learning Assessment #3: Geologic Time	
	Nov. 19	20	Earthquakes	Chapter 10
12	Nov. 24	21	Introduction to Geophysics and the Earth's Interior	Chapter 10
	Nov. 26	22	Mountain building and continental frameworks	Chapter 13
13	Dec. 1	23	Earth Resources	Chapter 20
	Dec. 3	24	Mineral Resources	
14-15			Final Exam Period Exam to be Scheduled by School of Science	

*Class to be held Wednesday October 7th from 10:30-12:00

**Online lectures on Moodle, J. Cubley at Geological Society of America meeting

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	Introduction to Core Logging
9	Folds and Faults

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.