CAMOSUN COLLEGE
School of Trades and Technology
Department of Civil Engineering Technology

ENGR 166
Geology for Engineers
2018 Winter

COURSE OUTLINE

Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

1 Instructor Information

Instructor	Sandra Taylor
Office hours	
Location	TEC 106
Phone	Alternative:
E-mail	smtgeology@gmail.com or jamesfitzsimmons@shaw.ca
Website	http://civil.camosun.bc.ca/student/

2 Prerequisites and Corequisites

none

3 Hours and Credits

Course Activity	Hours / Week	Instruction – No of Weeks *(Q=11; S=14; "P or S" = 7)*
☒ **Lecture (Direct Instruction)**	3	14
☐ **Seminar (Direct Instruction)**		14
☒ **Lab /Collaborative Learning**	2	14
☐ **Supervised Field Practice**		
☐ **Workplace Integrated Learning** *(Coop, Internship, etc.)*		
☐ **Other*(*please note*):**		

Credits = 3

4 Short Description

An introduction to minerals, rocks and economic deposits, rock-forming processes, weathering and soils, erosion by gravity, water, ice and wind, plate tectonics, structural geology, and mountain building, mass wasting, and other naturally-occurring or man-made geological hazards of interest to engineers. Field-based geological investigations form part of the laboratory.

Open to students in Engineering Bridge programs.

5 Intended Learning Outcomes

Upon completion of this course the successful student should be able to:

- Describe the internal structure and evolution of the Earth, and have a working knowledge of principles of geological time, Earth history and the geologic time scale;
- Identify common rock-forming minerals and common rocks, and briefly describe their composition, mode of origin and significance as an engineering material;
- Discuss physical and chemical processes of weathering and soil development, and erosion of geologic materials by gravity, water, ice and wind with reference to engineering material;
- Discuss the theory of plate tectonics in relation to geological processes such as volcanism, faults and earthquake activity, mountain building, and the rock cycle;
- Discuss geological hazards (earthquakes, mass-wasting, subsidence, slope stability, and acid mine-drainage) and other topics of environmental concern to the engineer; and
- Interpret and use geological maps as effective tools for engineering planning.

6 Course Content and Schedule

Week	*Topic*
1	Identification of minerals
2	Identification of rare minerals and gems
3	Identification of igneous rocks and their formation; plutonism
4	Volcanism
5	Identification of sedimentary rocks, weathering processes
6	Metamorphic processes and ident. of metamorphic rocks
7	Stress, strain, formation of geological structures.
8	Earthquake anatomy; prediction and analysis
9	Plate tectonism and Earth interior
10	Erosional processes vs weathering
11	Mass wasting, stream erosion, groundwater
12	Glaciation, wind action, wave action
13	Origin of the earth in solar system
14	Local and regional geology and history/ map interpretation
15	Exam Week

7 Basis of Student Assessment

Component	*Weighting %*	*Comments*
Assignments	15	
Mineral and Rock ID	20	
Quizzes	10	
Labs	10	
Final Exam	45	
TOTAL	100	

8 Recommended Materials to Assist Students to Succeed Throughout the Course

a) Texts – Tarbuck et al: Geology 2015 [canadian edition]
b) Other – ENGR 166 course pack; waterproof field notebook

9 College Supports, Services and Policies

Immediate, Urgent, or Emergency Support
If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ http://camosun.ca/about/mental-health/emergency.html or http://camosun.ca/services/sexual-violence/get-support.html#urgent

College Services
Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at http://camosun.ca/

College Policies
Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at http://camosun.ca/about/policies/. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

10 Grading System

☒ *Standard Grading System (GPA)*
☐ *Competency Based Grading System*

See Camosun Grading Policy E-1.5

11 Class Policies

- This course presents some key fundamental principles and analytical techniques applicable to practical problems in geology, geotechnology, geological and mining engineering. The course concentrates on identification and interpretation of geological materials, structures and processes.
- The coursework includes five biweekly quizzes, plus one or two short papers on recent geological problems. Labs will be completed in class. Some adjustments or fine tuning may be done in course contents, dates and assignments as the term proceeds.
- You must pass the final to pass the course