



CAMOSUN COLLEGE
School of Arts & Science
Department of Chemistry and Geoscience

GEOS-110-001
Earth-Ocean-Atmosphere System
Fall, 2020

COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/geos.html>

Ω 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

(a) Instructor	Dr. Leanne Pyle
(b) Office hours	Monday & Thursday 11:30-12:20, in our Collaborate room, or e-mail to make an appointment
(c) Location	online
(d) Phone	please email Alternative:
(e) E-mail	PyleL@camosun.bc.ca
(f) Website	D2L

2. Intended Learning Outcomes

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

1. Describe and interpret short-term and long-term Geologic, Oceanic and Atmospheric processes and their interactions.
2. Make hypothesis-based scientific observations, analyze and interpret quantitative data with reference to Geologic, Oceanic and Atmospheric processes.
3. Comment on orbital motion and wave motion and apply standard equations to compute wave velocity.
4. Use simple laboratory equipment to study and measure wave velocity.
5. Utilize standard tide and current tables and software.
6. Interpret relationships among temperature, salinity and density of seawater, and how these properties vary over time.
7. Describe ocean current transport and be able to assess the role of currents in global heat transfer.
8. Describe relationships among surface ocean currents and atmospheric circulation.
9. Analyze grain size of sediment samples and interpret current environment and sedimentary environment of deposition from sediment data.
10. Determine salinity of water samples and the relationship of salinity to temperature, density and dissolved gases.
11. Comment on the energy budget of the atmosphere, and its short-term and long-term variability.
12. Comment on the chemical evolution of the atmosphere.
13. Describe coastal processes at the land-sea interface.
14. Relate ocean-floor topography and ocean depth data to processes of sea-floor spreading and the age of ocean basins.

3. Required Materials

(a) Fundamentals of Physical Geography (2nd edition): Chapters 7 and 9

<http://www.physicalgeography.net/fundamentals/chapter7.html>

<http://www.physicalgeography.net/fundamentals/chapter9.html>

(b) Introduction to Oceanography by Paul Webb

<https://rwu.pressbooks.pub/webboceanography/>

(c) Additional Select Readings in D2L

Steffen, W., et al. (2004). Global Change and the Earth System: A Planet Under Pressure

Earth 2020, An Insider's Guide to a Rapidly Changing Planet

4. Course Content and Schedule

- (a) Lectures: **Monday & Thursday 10:00PM - 11:20AM**. Review Lecture material on Monday (asynchronously) and meet in online classroom for synchronous lecture on Thursday.
- (b) Labs: **Tuesday 8:30PM - 11:20AM**. Synchronous in online classroom.
- (c) Lab attendance is mandatory, you must pass the lab to pass the course. Lab assignments are due at the end of each lab or field trip, or by Friday each week if you need more time.
- (d) Some labs will be based on field trips. This integrates your course learning with field observations and gives you practice relating the theory and terminology to real world observations and processes. Signed waivers are required to participate. An assignment done on-site during the field trip will be worth equal credit of one lab.
- (e) The schedule on the following page represents the intended sequence of topics, which may be altered in order to discuss events of local or international significance, e.g. rainfall, hurricanes, flooding, landslides, earthquakes, volcanic eruptions, tsunamis, as they occur during the course.

5. Basis of Student Assessment (Weighting)

- (a) Lab and field trip exercises = 25% of the course mark (10 assignments worth 2.5% each).
- (b) Quiz #1 & #2 = 10% each = 20%
- (c) Discussion Forum Posts = 10% (5 of these worth 2% each)
- (d) Term Project and Discussion Presentation = 20%
- (e) Final exam, cumulative, as scheduled during final exam period = 25%. Final exam schedules are set by the College and posted on Camlink. You must have a passing grade in the lab portion of the course to be able to write the Final Exam.

6. Grading System

Standard Grading System (GPA)

Competency Based Grading System

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

(Complete recommended readings, lab assignments and discussions)

8. 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.

A. GRADING SYSTEMS *http://camosun.ca/about/policies/index.html*

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.

DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. 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 <http://camosun.ca/about/policies/index.html> for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> 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	<i>In progress:</i> 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	<i>Compulsory Withdrawal:</i> 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.

GEOS-110 Earth-Ocean-Atmosphere System Schedule

Week	Lecture Topics	Readings, Activities, Assignments
Sept. 7	Introduction to Earth Systems	Read Chapter 1 in Steffen et al. 2004 No Lab this week Post in Discussions, Introductions
Sept. 14	Global Change and Earth Systems Earth's Energy Balance	Read Webb Chapter 8.1 Field Trip 1 on Tuesday, September 15 th Hand in Field Trip Assignment by Friday
Sept. 21	Geosphere and Plate Tectonics Geology of the Oceans	Read Webb Chapter 3 and 4 Hand in Lab 1 Assignment by Friday Post Activity 1 in Discussion Forum
Sept. 28	Coastal Processes and Sea Level	Read Webb Chapter 13 Hand in Lab 2 Assignment by Friday
Oct. 5	Atmospheric System Origin of Life and Early Atmospheres	Read Fundamentals Chapter 7 Field Trip 2 on Tuesday, October 6 th Hand in Field Trip Assignment by next Friday Post Activity 2 in Discussion Forum
Oct. 12	Hydrosphere & Ocean System	Read Webb Chapters 5, 6, 7, 9 Hand in Lab 3 Assignment by Friday Post Activity 3 in Discussion Forum
Oct. 19	Biogeochemical Cycles	Read Fundamentals Chapter 9 Hand in Lab 4 Assignment by Friday Term Project Topic due (email idea to Dr. Pyle) Quiz #1
Oct. 26	Biosphere and Biodiversity	Read Fundamentals Chapter 9 Hand in Lab 5 Assignment by Friday Post Activity 4 in Discussion Forum
Nov. 2	Biosphere and Biodiversity	Hand in Lab 6 Assignment by Friday
Nov. 9	Carbon Cycle and Humans	Read Fundamentals Chapter 9 Hand in Lab 7 Assignment by Friday Post Activity 5 in Discussion Forum
Nov. 16	Cryosphere and Pleistocene Glaciations Holocene Climate Change	Read Webb Chapter 14 Term Project Written Report & Presentations due in separate Assignment Dropboxes Quiz #2
Nov. 23	Global Warming and Climate Change	Read Webb Chapter 8.5 During Lab Period, Round 1 of Student Presentations
Nov. 30	Global Warming and Climate Change	During Lab Period, Round 2 of Student Presentations
Dec. 7	Course wrap-up/summary	