UNIVERSITY OF THE FRASER VALLEY

ORIGINAL COURSE IMPLEMENTATION DATE: January 2008
REVISED COURSE IMPLEMENTATION DATE: January 2018
COURSE TO BE REVIEWED: (six years after UEC approval) May 2020
Course outline form version: 09/15/14

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: GEOG 308	**Number of Credits:** 4 Course credit policy (105)
Course Full Title: Climate Change and Variability **Course Short Title (if title exceeds 30 characters):**	
Faculty: Faculty of Social Sciences	**Department (or program if no department):** Geography and the Environment

Calendar Description:

This course investigates the causes and characteristics of regional and global climate change and variability. The significance of understanding past climates and their reconstruction is addressed. Environmental and socio-economic impacts of climate change, policy responses to climate change, and mitigation and adaptation strategies are examined.

Note: Field trips outside of class time will be required. Please refer to the department website for field trip scheduling information.
Note: Students with credit for GEOG 401 cannot take this course for further credit.

Prerequisites (or NONE):	45 university-level credits.
Corequisites (if applicable, or NONE):	NONE
Pre/corequisites (if applicable, or NONE):	NONE

Equivalent Courses (cannot be taken for additional credit)
Former course code/number:
Cross-listed with:
Equivalent course(s): **GEOG 401**
Note: Equivalent course(s) should be included in the calendar description by way of a note that students with credit for the equivalent course(s) cannot take this course for further credit.

Transfer Credit
Transfer credit already exists: ☐ Yes ☒ No
Transfer credit requested (OReg to submit to BCCAT):
☐ Yes ☒ No (if yes, fill in transfer credit form)
Resubmit revised outline for articulation: ☐ Yes ☒ No
To find out how this course transfers, see **bctransferguide.ca**.

Total Hours: 90
Typical structure of instructional hours:

Lecture hours	45
Seminars/tutorials/workshops	
Laboratory hours	30
Field experience hours	15
Experiential (practicum, internship, etc.)	
Online learning activities	
Other contact hours:	
Total	**90**

Special Topics
Will the course be offered with different topics?
☐ Yes ☒ No
If yes, different lettered courses may be taken for credit:
☐ No ☐ Yes, repeat(s) ☐ Yes, no limit
Note: The specific topic will be recorded when offered.

Maximum enrolment (for information only): 25

Expected frequency of course offerings (every semester, annually, every other year, etc.): Once every other year

Department / Program Head or Director: Steven Marsh	**Date approved:**	December 2016
Faculty Council approval	**Date approved:**	January 2017
Campus-Wide Consultation (CWC)	**Date of posting:**	March 17, 2017
Dean/Associate VP: Jacqueline Nolte	**Date approved:**	January 2017
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	March 24, 2017

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Conduct quantitative analysis of climatological data for indications of climate change and variation.
2. Critically analyze both the scientific evidence and the scientific uncertainties associated with global climate change.
3. Describe and assess the potential impacts of global climate change and possible responses to these impacts.
4. Navigate the contentious politics surrounding the debate over global climate change.
5. Explain the science behind the reconstruction of past climates.
6. Source and interpret climate observations and related that are collected from third party sources.
7. Describe the mechanisms that force climate and the role they have played both in the past and currently.
8. Assess the potential impacts from global warming for a local community.
9. Critically reflect upon your learning from in-class discussions, field work and related research.
10. Demonstrate written, oral and numerical competency in the complex science of climate change.
11. Discuss the role that ethics play in how climate change is presented on the world stage.

Prior Learning Assessment and Recognition (PLAR)

☒ Yes ☐ No, PLAR cannot be awarded for this course because

Typical Instructional Methods (guest lecturers, presentations, online instruction, field trips, etc.; may vary at department's discretion)

This course may involve lectures, group discussions, assigned readings, oral presentations, field work, and guest speakers.

Grading system: Letter Grades: ☒ Credit/No Credit: ☐ Labs to be scheduled independent of lecture hours: Yes ☐ No ☒

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Typical Text(s) and Resource Materials (if more space is required, download Supplemental Texts and Resource Materials form)

	Author (surname, initials)	Title (article, book, journal, etc.)	Current ed.	Publisher	Year
1.	Houghton, J.	Global Warming: The Complete Briefing	☒	Cambridge University Press	2015
2.	Weaver, Andrew	Keeping Our Cool. Canada in a Warming World	☐	Viking	2008
3.	Stephen Peake and Joe Smith	Climate Change: From Science to Sustainability	☐	Oxford University Press	2009
4.	IPCC	Climate Change 2013: The Physical Science Basis	☐	Cambridge University Press	2014
5.	Flannery, T.	The Weather Makers	☐	Harper Collins	2005

Required Additional Supplies and Materials (software, hardware, tools, specialized clothing, etc.)

None.

Typical Evaluation Methods and Weighting

Final exam:	25%	Assignments:	30%	Midterm exam:	%	Practicum:	%
Quizzes/tests:	%	Lab work:	30%	Field experience:	%	Shop work:	%
Reflection Journal:	15%	Other:	%	Other:	%	Total:	0%

Details (if necessary):

Typical Course Content and Topics

Week 1 Introduction to the Science and Perception of Climate Change
Week 2 The Science of Climate Forcing Mechanisms from Natural to Anthropogenic Processes
Week 3 Natural Variations in Climate, From El Nino to the North Pacific Decadal Oscillation
Week 4 Climates of the Paleozoic – Snowball Earth, evidence and mechanisms.
Week 5 Climates of the Mesozoic – Hothouse Earth, evidence and mechanisms
Week 6 Climates of the Cenozoic – Hothouse to Ice house, evidence and mechanisms.
Week 7 Climate and Human Civilizations through the Holocene.
Week 8 The Carbon Theory of Climate and Global Warming
Week 9 Future Impacts of a Changing Climate
Week 10 Mitigation of Future Climate Changes
Week 11 Adaptation to Future Climate Changes
Week 12 Student Presentations