DIVISION OF APPLIED SCIENCE AND MANAGEMENT
School of Science
Winter, 2018

COURSE OUTLINE

GEOG 290 / RENR 466

CLIMATE CHANGE IN THE CIRCUMPOLAR WORLD

36 **HOURS**
3 **CREDITS**

PREPARED BY: Brian Horton DATE: November 29, 2017

APPROVED BY: Margaret Dumkee DATE: December 1, 2017

APPROVED BY ACADEMIC COUNCIL: (date)

RENEWED BY ACADEMIC COUNCIL: (date)

YUKON COLLEGE

Course Outline prepared by Brian Horton, November 2017

Yukon College
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DIVISION OF APPLIED SCIENCE AND MANAGEMENT
Climate Change in the Circumpolar World
3 Credit Course
Winter, 2018

CLIMATE CHANGE IN THE CIRCUMPOLAR WORLD

INSTRUCTOR: Maciej Stetkiewicz / Brian Horton

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OFFICE HOURS: By Appointment

CLASSROOM: A2402

TIME: Thursdays, 1900-2200

DATES: January 4 – April 5, 2018

COURSE DESCRIPTION

Global climate change is an issue of high priority for citizens, decision makers in the public and private sector, and the research community. There remain many questions related to the concrete extent and nature of current and projected changes in the global climate system, and how these changes will affect the North both positively and negatively. While some of the information and evidence about climate change is clear, the process is multi-faceted with implications for ecosystems, socioeconomics and health. Combining this complexity with the extent of the problem means that there are no comprehensive, simple solutions.

Developing responses to climate change requires an understanding of the basic scientific principles behind climate change, the strengths and weaknesses of global climate models that are used to project future conditions, the impacts of climate change on physical, natural and socio-economic systems, and the nature of the vulnerability within these systems to changing environmental conditions. Responses to climate change include education, research, policy, economics and technology. The responses tend to be most effective when considered in a comprehensive and integrated manner.

This course examines the contemporary issue of climate change in the context of northern environments. The course canvasses our understanding of climate change and responses to it. The course begins with an overview of climate change as an issue its detection, historical evidence and scientific basis, and then examines potential

impacts of change on northern environments and socio-economic systems. The course concludes with an exploration of the nature and variety of responses to the issue at regional, national, and international levels, with a focus on adaptation, mitigation and policy responses.

The multi-disciplinary approach to this course targets a broad audience: a Yukon College certificate or diploma student / University of Alberta Northern Environmental and Conservation Sciences students, a graduate of one of its programs, working professionals, policy makers and interested members of the public. The 3-credit course is a recommended elective in several diploma programs, including the Renewable Resources Management Program.

PREREQUISITES

For students taking the course as GEOG 290: Students with a second-year standing or permission of the instructor or a program advisor.

For students taking the course as RENR 466: Registration in University of Alberta BSc in Environmental and Conservation Sciences degree program and permission of a Northern ENCS Program Advisor.

This course may be of interest to managers and practitioners, who are not in a diploma program at Yukon College or another institution, but work in a field that would benefit from a background in climate change. Participation by these students is encouraged, and these students are strongly recommended to contact the course's instructor prior to enrolling.

Students at other institutions are welcome to take this course. Such students should have a Letter of Permission from their home institution if they intend to apply this course to their programs.

RELATED COURSE REQUIREMENTS

GEOG 290 is the course offering through Yukon College. RENR 466 is the course offering through the University of Alberta. The course syllabus is the same for the two offerings, but in general expectations for RENR 466 will be elevated. This will include additional required reading, enhanced module exercises, a seminar (rather than a presentation), and modified or supplementary exam questions.

EQUIVALENCY OR TRANSFERABILITY

Transfer options for GEOG 290 can be investigated using the BC Transfer Guide - http://www.bctransferguide.ca/search/course?search=YUKO%20GEOG%20%20290&direction=Sending&year=

LEARNING OUTCOMES

Upon successful completion of the course, students will be able to

- Understand the many dimensions of climate change;
- Evaluate the evidence regarding climate change - both current and past – and an understanding of the level of uncertainty in predicting changes in climate;
- Understand why climate change is more dramatic in the North;
- Demonstrate knowledge of how the North has responded to ecological, economic and cultural changes in the past, and how the North may respond to plausible scenarios of future climate change;
- Demonstrate awareness of the complexity of developing responses to climate change; and
- Gain confidence in critical thinking, writing, oral presentation and research skills.

COURSE FORMAT

This 13-week course is being offered in the evenings to maximize participation by practitioners and those with a general interest in the topic. Instruction will take place one evening a week over a 3-hour class in the winter semester. The class will mix lectures with discussion and collaborative activities.

The course is divided into modules (described in the outline). Each module includes readings, although there is no single text prescribed for the course. Students will be expected to read assigned module readings, and are encouraged to explore and read supplementary material. Other media may be included or suggested. All course submissions (except exams) will be digital.

ASSESSMENTS

Assignments – Throughout the course analysis activity, a poster, and a short paper will be assigned.

Mid Term Exam – There will be a 1.5 hour mid-term exam consisting primarily of short answer and essay questions. Exam questions will be based on the readings, the lectures and on study questions.

Research Presentation – Each student will be required to deliver a presentation (10-minute for GEOG 290 students and 20-minute for RENR 466 students) on an in depth climate change topic relevant to the Yukon. Presentations will be graded on the clarity of the material presented, oral presentation skills, the support of visual presentation aids, and quality of responses to questions posed by the Instructor and the class following the presentation.

Final Exam – There will be a 3-hour final exam consisting primarily of short answer and essay questions.

Attendance & Participation – You may earn up to 5% towards your final grade by participating in class discussions. The base mark in this will be weighted to your final grade in the course, with points added for meaningful participation.

EVALUATION

Assignments	45%
Midterm Exam	20%
Participation	5%
Final Exam	30%
Total	100%

REQUIRED TEXTBOOKS AND MATERIALS

There is no specific textbook for the class. We will draw from existing online resources for all activities. Key resources include the following:

- The Snow, Water, Ice, Permafrost in the Arctic assessment report (http://www.amap.no/swipa2017)
- The Arctic Council Arctic Resilience Report (http://arctic-council.org/arr/)
- The Global Change Programme Climate Science Special Report - Fourth National Climate Assessment (NCA4), Volume I (https://science2017.globalchange.gov/)

Readings from these materials and other online resources will be assigned during the course.

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.

For students enrolled in RENR 466, the University of Alberta is committed to the highest standards of academic integrity and honesty. University of Alberta students are expected to be familiar with these standards regarding academic honesty and to uphold the policies of the University in this respect. Students must familiarize themselves with the Code of Student Behaviour (www.ualberta.ca/secretariat/appeals.htm) and avoid any behaviour which could result in suspicions of cheating, plagiarism, misrepresentation of facts and/or participation in an offence. Academic dishonesty is a serious offence and can result in suspension or expulsion from the University. Students should be particularly aware of the code as it pertains to assignments, internet and library research, use of previous class notes and interviews or discussions with others.

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.

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

TOPIC OUTLINE

Date	Topic	Assignments due by start of class (Grade Value)
4-Jan	Introductions to class and climate change	
11-Jan	Climate Fundamentals and Scientific Basis	
18-Jan	Anthropogenic Climate Change	Understanding Climate Data **(5%)**
25-Jan	Perspectives on impacts	
1-Feb	Perspectives on impacts & Review Lecture	
8-Feb	Mid-term	Mid-term **(20%)**
15-Feb	Policy Responses to Climate Change	Exec Summary Evaluation **(10%)**
22-Feb	Reading Week. No Class	
1-Mar	Responding to Climate Change - Adapt	Digital Poster Session Day 1 **(15%)**
8-Mar	Responding to Climate Change - Adapt / Mitigate	Digital Poster Session Day 2
15-Mar	Responding to Climate Change - Mitigate	
22-Mar	Responding to Climate Change - Geoengineering???	Student Presentations **(15%)**
29-Mar	Review lecture	Student Presentations
		Student Presentations
TBD		Final Exam **(30%)**
All Weeks		Contribution to Class Activities **(5%)**