

# GEOGRAPHY AND PLANNING

## GPHY 314 – Climate Change



<b>Contact Time</b>	Two 1.5-hour lectures per week Weekly 1-hour laboratory	
<b>Format</b>	Lectures, quizzes, and lab assignments	
<b>Class Assessment</b>	Assignments	3 X 10% each
	Mini assignment	1 X 5%
	Weekly quizzes	10 X 6% each
	Laboratory participation	5%
	No Final Exam	

### COURSE OVERVIEW

This course introduces students to the science of global climate change and explores potential outcomes and political aspects that surround the topic of climate change today. The course aims to provide students with a sound sense of background on how the climate system works and how the scientific community uses models, observations, and theory to assess changes, causes and impacts of climate through different time scales. A focus will be placed on past and present evidence of climate change, but some of the potential social, economic, and environmental consequences of future climate change will also be explored later in the course. Attention will be drawn to the latest research on climate change as well as the evolution of scientific data and conclusions that have emerged over the past decades. Students will be able to gain a theoretical background from lectures, and to bring active discussion in tutorials.

### LEARNING OUTCOMES

- Learn how to interpret information covering varying time and spatial scales;
- Recognize and understand the empirical evidence of climate change;
- Assess the role of human involvement in climate change;
- Analyze the future effects of climate change and understand associated uncertainties;
- Recognize well-founded or false arguments used in science, policy and media;
- Work with climate data to build interpretive skill and process knowledge and;
- Develop skills for communicating climate change science and policy.

### COURSE TOPICS

- What is climate change?
- Climate history of the Earth
- Anthropogenic and natural sources of climate variability
- Indicators of modern climate change
- Projected changes to the earth's climate
- Global impacts of climate change
- Impacts of climate change on northern Canada
- Climate adaptation and mitigation
- Communication of climate science

### COURSE READINGS

**Required:** Dessler, A. 2021. Introduction to Modern Climate Change. Third Edition, Cambridge University Press. E-book available via the campus bookstore. Note: The older 2nd edition of Introduction to Modern Climate Change is also a suitable alternative.

**Optional:** Ruddiman, W.F., 2014. Earth's Climate: Past and Future, 3rd Edition, W H Freeman & Co, 464 p.