Topics in the Cryosphere (Geo 548)
3 credits.

Note: This Course has a Moodle Site. A detailed class schedule and other information will be posted there with frequent updates, so check the site regularly.

Instructor information
Dr. Joel Harper
Office: ISB 406-C
Office ph: 4062435867
e-mail: Joel@mso.umt.edu (email is the best way to reach me; I check often)

Office hours
Tuesdays, 4-5
Wednesdays, 10-12.

Course objective
The goal of this course is to gain in-depth understanding of processes, research methods, and recent scientific breakthroughs related to snow and ice. In contrast to a survey course, we will go deep into a few specific topics. We will focus this semester on two topics: 1) ice and sea level rise, and 2) seasonal snow in a changing climate. The first 9 meetings before spring break will be devoted to the first topic, and the last 6 meetings after spring break will focus on the second. These two topics will allow us to consider the big picture implications of two societally pressing issues in glaciology, but will also permit us to dig deep into some of the nitty gritty processes concerning the cryosphere. A preliminary outline of weekly topics is posted on the Moodle site.

Learning outcomes
Students will be able to:
• describe the various contributors to sea level rise, and their current rates of change.
• describe the processes within ice sheets that control the rate of sea level contributions.
• describe the impact of a warming climate on the water resources derived from the seasonal snowpack.

Format
Classes will consist of lectures, readings, and discussions. A major component of this course is completing the assigned reading and preparing for class discussions.

Prerequisites
Graduate standing in a science discipline.

Course text
No text required. Readings will be posted on Moodle.
**Evaluation criteria for letter grade**
1. Attendance and engagement in discussions
2. Paper reviews
3. Mini chalk talks
4. One major lecture exercise

**Schedule**
A tentative schedule with detailed topics has been posted on the Moodle site. Note that this schedule is subject to updating as the course progresses based on feedback from course participants.

**Policies**

**Emailing**
I will occasionally conduct email correspondence with class members and will use official UM email addresses. Check this account! All email sent to me must originate from your official UM email address. Email originating from non-UM addresses cannot be read or responded to (Sorry, but this is a University rule we are required to follow).

**Attendance**
No formal attendance will be taken. However, the format of this course requires class attendance for success. Substantial course content (i.e., lectures and in-class discussions) as well as most information transfer will only occur in class. This is not a good course for you if you expect to miss class more than very rarely.

**Due dates**
All assignments are due at the start of class on designated due date.

**Disabilities**
The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

**Conduct Code**
All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online at: [https://www.umt.edu/safety/policies/default.php](https://www.umt.edu/safety/policies/default.php)