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Fall 9-2015

### GEO 548.01: Topics in Cryosphere

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## Topics in the Cryosphere (Geosciences 548) – Fall 2015

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### Meeting

Tuesdays 3-5 PM & Thursdays 3-4 PM, ISB Room 406

### Instructor information

Joel Harper

Office: ISB 407

Office ph: 243-5867

Home ph: 829-0671 (before 9 PM); cell 214-9311 (I'm not diligent about having it with me)

e-mail: [Joel@mso.umt.edu](mailto:Joel@mso.umt.edu) → I check this often, including weekends

[www.umt.edu/geology/faculty/harper](http://www.umt.edu/geology/faculty/harper)

### Course objective

The primary goal of this course is to gain in-depth understanding of processes, research methods, and recent scientific breakthroughs related to ice sheet flow. In contrast to a survey course, we will go deep into a few specific topics. This course is only appropriate for graduate students conducting advanced research related to the broad field of glaciology.

### Course Design and Student Responsibilities

There will be four course activities and we will divide our time between them. We will look for opportunities for overlap between the focus areas.

#### 1) Review and discussion of student/faculty research related to ice sheet dynamics

All students have research projects that have some component related to ice sheet flow processes. This is an opportunity to have the entire group spend some time reading and discussing a key topic related to your work.

#### 2) Review and assess recent scientific advances in ice sheet motion

We will perform peer review of recently published works on ice sheet flow dynamics. The review will consist of a written evaluation and a panel discussion. Each week we will address a different topic and set of associated publications. The entire group will read a common paper and perform a scientific peer review of the article. One group member will take the lead on conducting the group review. This will involve facilitating the discussion and most likely, reading and presenting other related publications which aid the discussion. The facilitator will write a group summary of the main conclusions of the panel review.

#### 3) Group Research project

We will design and execute an in depth research project. The topic and research plan will stem from brainstorming sessions. Possible ideas include firn densification under wet conditions, vertical flow in ice sheets, and water pressure/sliding-speed relationships. The project will include in depth review of existing literature on the subject, along with design and execution of research objectives. Existing data and/or models will be utilized.

### Grading

Letter grades will be assigned. Grades are based on level and quality of participation. Equal weight will be given to performance in the different course focus areas.

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 via the UM office of Student Affairs website.