

# GEOLOGY 370: GLACIAL GEOLOGY

Winterim, 2020

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## Course Overview:

Glacial geology is the study of the effects that ice sheets and other types of glaciers have had on landscape development (a subfield of geomorphology). However, because the nature of glaciers (e.g., their formation, thermal regimes and hydrology) is critical to understanding their geomorphic effects, modern glacial geologists are also interested in the study of glaciers themselves (which is known as glaciology). This course emphasizes glacial geomorphology over glaciology, stressing the aspects of this subject which are important to applied geoscience (e.g., the characteristics of glacial deposits and their interpretation in the field).

Because this course is offered during Winterim, each day represents roughly one full week during a normal semester. Therefore, students will need to maintain a commitment to keep on schedule, which involves completing daily assignments. The course is not designed primarily to deliver the content but to lead students through a process of learning for themselves, which is the purpose of the assignments.

## Course Textbook:

The main textbook for this course (Glacial Geology: Ice Sheets and Landforms, 2<sup>nd</sup> ed. (2009) by Bennett and Glasser) is available online and also through the University Bookstore text rental. We will also make use of other online resources, including a course web site developed by Dr. Karen Lemke (an emerita faculty member of the UWSP Department of Geography and Geology). For a ten-minute Slideplayer overview of the subject matter, visit <https://slideplayer.com/slide/3724591/>; for a pictorial overview, see <https://www.slideshare.net/laurenadams718/geology-lecture-20>. You will also find the Swisse Glaciers Online glossary helpful.

## Rights and Responsibilities:

Student rights and responsibilities, including the behaviors that are expected of both students and faculty in the classroom environment, are described in the **UW-SP Student Handbook**. Links to the various policies can be accessed online at: <https://www.uwsp.edu/dos/Pages/handbook.aspx>.

## Grading Policy:

Grades will be based on 13 assignments. The point values for each assignment will vary, but the total points for all assignments is **950** (point values for each question are indicated in [ ] brackets at the end of the question). The final grade in the course will be based on the total points earned from completing the assignments (see table on next page).

Final grades in the course will include the plus and minus option. In *no case* will an incomplete be granted for the course unless the student has an extended illness, a lengthy hospital stay, or a family emergency near the end of the semester.

FINAL GRADES					
Grade	Percentage	Points	Grade	Percentage	Points
<b>A</b>	≥ 93 %	≥ 883	<b>C</b>	73 – 76 %	689 – 726
<b>A-</b>	90 – 92 %	850 – 883	<b>C-</b>	70 – 72 %	660 – 688
<b>B+</b>	87 – 89 %	822 – 849	<b>D+</b>	67 – 69 %	632 – 659
<b>B</b>	83 – 86 %	784 – 821	<b>D</b>	63 – 66 %	594 – 632
<b>B-</b>	80 – 82 %	755 – 783	<b>F</b>	≤ 62 %	≤ 593
<b>C+</b>	77 – 79 %	727 – 754			

### Assignments:

Daily assignments involve answering questions that test a student’s understanding of the topics covered in textbook readings or in other linked resources. Some questions merely force students to search the readings for definitions, descriptions, etc. These are necessary to lay a foundation for more advanced questions that require interpretations. The assignments are designed to take between three and six hours to complete.

Assignments are due by midnight of the day they are assigned. They will be graded and returned with all incorrect answers marked. Late assignments will result in partial credit (ten percent of the total points will be subtracted for each day beyond the due date that an assignment is submitted).

Assignments are delivered as individual Word documents, and students are asked to submit their answers to the questions posed in these assignments as Word documents. The easiest way to do this is for students to simply type their answers into the spaces between questions in the original documents. It would be helpful if the answers were typed in bold font.

Student answers will be graded, and the Word documents will be returned with incorrect answers highlighted in red. Students may resubmit their assignments with corrected answers through the final day of class (see schedule below). Corrected answers that are resubmitted count as half of their original point values. As indicated in the **Class Schedule** (see next page), January 17<sup>th</sup>, the final day of class, is the last opportunity to submit corrected answers (there is no new assignment to be completed on that day).

### Office Hours:

Because students have the freedom to choose when they wish to work on the daily assignments, there is no perfect time for me to hold virtual “office hours”. As questions arise, you should email me at [dozsvath@uwsp.edu](mailto:dozsvath@uwsp.edu). I will check my email frequently **between the hours of 9:00 am and 9:00 pm**; but if you don’t hear back from me immediately, continue working on other parts of the assignment, knowing that I will eventually respond to your question.

I also invite students to provide me with feedback (via email) on how the course is going (e.g., are the assignments taking too long, are the questions not clear, etc.). Because I haven’t offered this course online before, I am open to making adjustments based on student responses.

## CLASS SCHEDULE

DATE ASSIGNED	ASSIGNMENTS		POINT VALUE
	NO.	TOPICS COVERED IN ASSIGNMENT	
January 2 <sup>nd</sup>	1	Ice Ages, Glacier Formation, Classification, and Mass Balance	75
January 3 <sup>rd</sup>	2	Glacier Mass Balance, Glacier Responses to Climate Change	71
January 4 <sup>th</sup>	3	Glacier Thermal Regimes, Mechanisms and Rates of Ice Flow	73
January 6 <sup>th</sup>	4	Processes, Patterns, and Landforms of Erosion by Glaciers	67
January 7 <sup>th</sup>	5	Glacial Debris Transport and Sediment Deposition by Ice	76
January 8 <sup>th</sup>	6	Landforms of Glacial Deposition: Moraines, Drumlins, Flutes	77
January 9 <sup>th</sup>	7	Glacial Meltwater: Occurrence, Erosion, and Deposition	74
January 10 <sup>th</sup>	8	Ice Contact Meltwater Landforms: Kames, Kettles, and Eskers	66
January 11 <sup>th</sup>	9	Glaciolacustrine and Glaciomarine Deposits and Landforms	73
January 13 <sup>th</sup>	10	The Origin of Wisconsin's Northern Kettle Moraine	75
January 14 <sup>th</sup>	11	Glacial Geology of Rocky Mountain National Park	73
January 15 <sup>th</sup>	12	Isostasy and the Effects of Post-Glacial Rebound	68
January 16 <sup>th</sup>	13	Additional Environmental Consequences to Glaciation	82
January 17 <sup>th</sup>		<b>Final opportunity to submit or resubmit assignments</b>	---