

University of Toronto Scarborough
Department of Physical and Environmental Sciences
EESB02H3 F – Principles of Geomorphology
2021 Outline

Instructor: Mandy Meriano
Office: EV362 Telephone: 416-208-2775
Online office hours: Thursday 12pm – 2pm
Email: m.meriano@utoronto.ca

Lecture time: Monday 11am to 1pm
Online Synchronous

Practical times: Friday 09:00 – 11:00; 11:00 –13:00; 13:00 – 15:00
Location: Online Synchronous

The field component of the course that is normally carried out during the scheduled practical sessions will not be carried out this year due to Covid-19 pandemic restrictions.

Teaching Assistants: Meiling Man and Ratanjit Saha
Office and office hours: TBA on Quercus

Lecture time (Online Synchronous): Monday 11am-1pm (Eastern Time)
Join Zoom Meeting
<https://utoronto.zoom.us/j/82404440890>
Meeting ID: 824 0444 0890
Passcode: 628328

Prof's Office hours: Thursday 12pm – 2pm (Eastern Time)
Join Zoom Meeting
<https://utoronto.zoom.us/j/82793995889>
Meeting ID: 827 9399 5889
Passcode: 969090

Notice of video recording and sharing (Download and re-use prohibited)

This course, including your participation, will be recorded on video and will be available to students in the course for viewing remotely and after each session.

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TEXTBOOK: Bierman, P.R. and Montgomery, D.R. 2020. *Key Concepts in Geomorphology*, 2nd ed. W.H. Freeman and Company, New York, NY.

The course textbook is available from the UTSC Bookstore. The course textbook is available from the UTSC Bookstore. Digital version of the textbook can be purchased here: <https://uoftbookstore.vitalsource.com/textbooks?term=9781319312527>

DESCRIPTION: The earth's surface form and its dynamic behavior at range of spatial and temporal scales is an integral part of the physical, biological and human environment. It is strongly influenced by human activity, while at the same time imposing severe constraints upon that activity. The study of the earth's surface forms and their morphodynamic behavior, both naturally and under the impact of human habitation, is the field of Geomorphology. It is the human interaction with the surface of the earth that gives rise to a number of environmental concerns: e.g., surface erosion, catastrophic floods, sea-level rise, landslides, water resources and water extraction, etc. This introductory course combines aspects of geology, climatology, hydrology, and soil science to present a coherent introduction to the surface of the Earth, with emphasis on both fundamental concepts and practical applications, as a basis for understanding and intelligent management of the Earth's physical and chemical environment.

LEARNING OBJECTIVES: By the end of the course students will have developed a coherent understanding of the various aspects of geology, climatology, hydrology, and soil science that shape the surface of the Earth, with emphasis on both fundamental concepts and practical applications, as a basis for understanding and intelligent management of the Earth's physical and chemical environment.

MARKING SCHEME (tentative): Five practicals; value 40%; a midterm exam: value 25%; and a final exam: value 35%.

Evaluation Components	% Grade	Key Dates and Deadlines
1. Practical 1 (Excel Assign: Gauging Streamflow)	5	Sep 24; Due Oct 08
2. Practical 2 (Excel Assign: Flood Freq_Urbanization)	10	Oct 08; Due Oct 22
3. Practical 3 (Streamflow)	10	Oct 22; Due Nov 05
4. Practical 4 (Water chemistry)	10	Nov 05; Due Nov 26
5. Practical 5 (Google Earth Grand Canyon & Google Earth Alpine glaciation)	5	Nov 26; Due Dec 06
Midterm Exam	25	Oct 25 , (during class time)
Final Exam	35	TBA
Total Grade Possible	100	

The **midterm exam** is based on material covered in lectures and readings up to and including the class before the midterm exam. Readings will be from your course textbook: Bierman and Montgomery (2020). The format is **multiple choice**.

The **final exam** will be based on all term material (including readings and lectures). Readings will be from your course textbook: Bierman and Montgomery (2020). The format is **multiple choice and short answer questions**.

TENTATIVE LECTURES

Week 1: September 13	Earth's Dynamic Surface <i>Textbook readings: Ch 1</i>
Week 2: September 20	Earth's Solid Materials and Weathering <i>Textbook readings: Ch 5,6</i>
Week 3: September 27	Topography: Channels and Drainage Basins <i>Textbook readings: Ch 3</i>
Week 4: October 04	Geomorphic Hydrology (Part I) <i>Textbook readings: Ch 4,8,9</i>
----- October 11	<i>Reading Week</i>
Week 5: October 18	Geomorphic Hydrology (Part II) <i>Textbook readings: Ch 4,8,9</i>

Week 6: October 25	Mid-term exam held during class time
Week 7: November 01	Groundwater <i>Textbook readings: Ch 4</i>
Week 8: November 08	Glaciers <i>Textbook readings: Ch 13</i>
Week 9: November 15	Landscape Evolution <i>Textbook readings: Ch 2,12,15,16</i>
Week 10: November 22	Coastal Geomorphology <i>Textbook readings: Ch 10</i>
Week 11: November 29	Deserts: Wind as a Geomorphic Agent <i>Textbook readings: Ch 11</i>
Week 12: December 06	TBA (generally some lectures run into a 2 nd week – this lecture time will allow us to fully complete all the above noted lecture topics)

PLAGIARISM: Assignments are checked for plagiarism. Please consult the University Calendar for a discussion and outline of the policy on plagiarism and academic integrity (also see proceeding section below). The sanctions can be severe. If, after reviewing the University policy, you are uncertain about what constitutes plagiarism, talk to your course instructor.

ACADAMIC INTEGRITY: Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. The University of Toronto's Code of Behaviour on Academic Matters (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic dishonesty and the processes for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments:

- Using someone else's ideas or words without appropriate acknowledgement.
- Submitting your own work in more than one course without the permission of the instructor.
- Making up sources or facts.
- Obtaining or providing unauthorized assistance on any assignment.

On tests and exams:

- Using or possessing unauthorized aids.
- Looking at someone else's answers during an exam or test.

- Misrepresenting your identity.

In academic work:

- Falsifying institutional documents or grades.
- Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources (see <http://www.utoronto.ca/academicintegrity/>).

Please consult the University Calendar for information about grade distribution and academic conduct.

ABSENCES: If you need to miss a practical or term test for any legitimate reason, you must submit appropriate documentation within **three** business days of your absence. If the reason for your absence is medical, an official UTSC medical note must be completed by a doctor who examined you while you were ill/injured (i.e. not after the fact). The medical note can be downloaded at: http://www.utsc.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf. Note that conditions ranked as mild or negligible will not be considered a valid excuse.

MISSED TERM WORK: If a legitimate reason prevents you from submitting a piece of term work by its posted deadline, you must submit appropriate documentation within **three** business days of your absence. If the reason is medical, an official UTSC medical note must be completed by a doctor who examined you while you were ill/injured (i.e. not after the fact). The medical note can be downloaded at: http://www.utsc.utoronto.ca/~registrar/resources/pdf_general/UTSCmedicalcertificate.pdf. Note that conditions ranked as mild or negligible will not be considered a valid excuse.

HANDING IN ASSIGNMENT: You are responsible for making sure that your TA receives your work. Students who mail assignments in, place work on the floor outside an office, or slip assignments under a door, do so at their own risk.

LOST OR MISPLACED ASSIGNMENT: It is your responsibility to keep a photocopy of your work, and to make more than one copy of your work. Excuses are not accepted in the case of lost or misplaced work.

LATE ASSIGNMENTS: The late penalty is as follows:
1 day 10%, 2 day 20%, 3 day 30%, 4 day 40%, 5 day 50%, 6 day and after 100%

ACCESSABILITY: Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodation, please feel free to approach me and/or the *AccessAbility* Services

Office as soon as possible. I will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC AccessAbility Services staff (located in S302) are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations (416) 287-7560 or ability@utsc.utoronto.ca.

Students are encouraged to review the Calendar for information regarding all services available on campus.

List of references for concepts, information, data, figures, and text used in the course:

Allen, P.A. 1997, *Earth Surface Processes*. Blackwell Science, pp.404

Benn, D.I., and Evans, D.J.A. 1998, *Glaciers and Glaciation*. London, UK, Arnold, pp.734

Bierman, P.R. and Montgomery, D.R. 2014. *Key Concepts in Geomorphology*, W.H. Freeman and Company, New York, NY. pp.494

Bierman, P.R. and Montgomery, D.R. 2020. *Key Concepts in Geomorphology*, 2nd ed. W.H. Freeman and Company, New York, NY.

Bloom, A.L. 1998. *Geomorphology; A Systematic Analysis of Late Cenozoic Landforms*, 3rd ed. Prentice Hall, pp.482

Easterbrook, D.J., 1999. *Surface processes and landforms*, 2nd ed. Prentice-Hall, Inc., New Jersey, 546pp.

Flint, R.F. 1971, *Glacial and Quaternary Geology*. Wiley, pp.892

Google Earth™ (<http://www.google.com/earth/>)

Leopold, L.B. 1994, *A View of the River*, Harvard University Press, Cambridge, MA, pp.298

Leopold, L.B., Wolman, M.G., and Miller, J.P. 1964, *Fluvial Processes in Geomorphology*. Freeman, pp.522

Meriano, M., Published and unpublished research work

MIT OpenCourseWare (<http://ocw.mit.edu>; <http://ocw.mit.edu/terms/#cc>)

Strahler, A.N., 1975, *Physical Geography*, 4th ed. Wiley, pp.643

Sugden, D.E., and John, B.S. 1976, *Glaciers and Landscape*. London, Edward Arnold

Ltd., pp.376

Taylor, G., and Eggleton, R.A. 2001, *Regolith Geology and Geomorphology*: Wiley, pp.375

Thornbury, W.D. 1969, *Geomorphology*, 2nd ed. Wiley, pp.594

Trenhaile, A.S. 2010. *Geomorphology A Canadian Perspective*, 4th ed. Oxford University Press, Don Mills, Ontario. pp.558

Trenhaile, A.S. 2013. *Geomorphology A Canadian Perspective*, 5th ed. Oxford University Press, Don Mills, Ontario. pp.575