University of Toronto Scarborough

2016-2017

" Principles of Geomorphology"
(EES B02)

Instructor : Dr. Jovan R. Stefanovic

Office: EV 402

Lecture: Tuesday 9–11 am (MW170)

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Phone: 416.287.7224

Office hours: Tuesdays 11–12 pm

Lecture time: Tuesday 9 am to 11 am
Location: MW170

Practical times: Thursday 9:00-11:00; 11:00 –13:00; 13:00–15:00; 15:00–17:00
Location: EV224 (Chem and Env iSci Building) and computer lab (location TBA)
Field component of the practicals will be carried out in Highland Creek
Emphasis is placed on practical work in this course, which will involve some time commitment. However, this is reflected positively in your final grade.

Teaching Assistant: Zhu Yijie
Office and office hours: TBA on Blackboard

Lab coordinators: Chao Chen and Tom Meulendyk, EV304 and EV225

Textbook: There is no perfect textbook for the course, so the lecture material is a mixture of my experience in geomorphology and three textbooks which are available in the library on the course reserve. I will be referring frequently to several other texts to give more general overview of the topics covered in the course, and to allow some choice when other texts are not available. However, if you want to buy a book please consult with me be purchase.

Grading: Practicals (4 x 10%): 40%
Mid-term Examination: 25%
Final Examination: 35%

The intent of the course:

This course concentrates upon a selection of physical processes that create an infinite variety of landforms observed at the surface of the earth. Emphasis is placed upon developing a core understanding of sediment production and transport processes. This knowledge is then extended to the interpretation and comparison of a of arid, glacial, coastal and fluvial landforms. Lectures will focus on the conceptual basis for geomorphology, the chemical and physical processes responsible for the development of surface regolith, and mechanisms of the entrainment, transport, and deposition of mass by (a) gravitational stress; and (b) steady fluid flows (specifically in river environments). Lectures will provide the theoretical framework for the practical work, which ZLOO DOORZ GHWDLOHG VWXG\ RI WKH G\QDPLFV RI WKH VHOHFWHG SUR geomorphic system ±the Highland Creek Drainage Basin. Students are trained to carry out basic measurements and manipulate several fundamental numerical models that are commonly employed in sedimentary research. These include, for example, mass transport assessment, flow velocity and structure.

COURSE LEARNING OBJECTIVES:

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- Identify basic landforms on topographic maps, aerial images or in the field and interpret how they formed;
- Identify linkages between different geomorphic processes and systems;
- Apply various sediment transport models in fluvial systems;
- Analyze factors that influence stress and resistance in slope materials.

Tentative Course Schedule and Readings: Readings are from three textbooks which are available in Library on the short loan.

1. Dale Ritter, Craig Kochel, Jerry Miller, 2002, Process Geomorphology, Waveland Press Inc.
2. Paul R. Bierman and David Montgomery, 2014, Key Concepts in Geomorphology, Macmillan Higher Education Company.
3. Andre Robert, 2003, River Processes, An Introduction to Fluvial Dynamics, Hodder Arnold.

Students should note that topics may span more than one lecture period

Week LECTURE TOPICS

1. An overview of the course, expectations, and objectives.
   Historical Development (Bases for Geomorphological Theory)
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2. Where Does Sediment Come From?«« « «««««««««« «« ....Jan. 10th

Note: Practicals will start on January 12 (EV224)

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5. Fluvial Geomorphology (Hydraulic (Channel) Geometry)..................................Jan. 31st

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7. Midterm Examination (during class time).. Feb.14th

8. Reading Week – **University closed……………………………………………….** Feb.21st

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12. Mass Movements of Slope Materials..Mar. 21st

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MID -TERM EXAMINATION

The midterm is based on material covered in lectures and readings up to and including the class before the mi
exam. The 2-hour mid-term examination will be held on February 14 (9 to 11 am) in class. The exam will be multiple-choice, true-false and short answers questions and will be worth 25% of the final grade.

MISSED TEST

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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.

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.

ACADEMIC 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 valid indication of 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 behaviors that constitute academic dishonesty and the processes for addressing academic offenses.

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 behavior or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from

ACCESSIBILITY STATEMENT

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability/health consideration that may require accommodations, 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. Inquiries 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.

STUDENT CODE OF CONDUCT

Please arrive promptly for lecture and do not forget to turn off cell phones. You are fully expected to abide by the Code of Student Conduct as set out by The Governing Council at the University of Toronto (http://www.utoronto.ca/govcncl/pap/policies/studentc.html). This document defines the standards by which students are to conduct themselves within class and within the University community at large. Please be advised that misconduct of any form will not be tolerated in this class. This includes plagiarism on quizzes, assignments and exams, which will be strictly enforced and is easily detected. Please consult the University Calendar for information about grade distribution and academic conduct. 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 behavior 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/). If you have further questions regarding what constitutes plagiarism or other academic offenses, feel free to speak with Prof. Stefanovic.

Note:

Check Blackboard regularly. All announcements, lecture notes, practicals and midterm marks and other information will be posted on the Blackboard.

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, N
York, NY. pp.494
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
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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
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