DEPARTMENT OF GEOGRAPHY AND ENVIRONMENTAL MANGEMENT

University of Waterloo
Fall 2018

COURSE OUTLINE

COURSE: Geography 201 – Fluvial Geomorphology
Lectures: T & T STC 0050 4:00 – 5:20 PM

INSTRUCTOR: Dr. J. Beebe
Room 103 – ENV1; ext 35490
Office Hours: Tues and Thurs 2:30 – 3:45 PM

TAs To be Announced first week of Classes

Course Description:

Fluvial geomorphology is the scientific study of river landforms and the processes that create them. A working knowledge of fluvial geomorphology has important practical environmental science and management applications and is relevant to many other fields of environmental enquiry such as environmental engineering, watershed planning, source water protection, forestry and risk management.

This course will examine a range of physical and chemical processes that create micro and macro-scale landforms over a range of spatial and temporal scales. Implications of these earth surface processes for environmental management in the context of environmental change will be considered.

Course Goals:

- To provide an understanding of fundamental earth surface processes that create fluvial landforms
- To understand the relevance of fluvial geomorphology to other fields of environmental enquiry i.e. environmental engineering, planning, soil science, hydrology, sediment transport, water quality, water resources management.
- To understand the role that water plays in the formation and function of other geomorphological processes, including glacial, coastal and hillslope.

Required Text: There is not going to be a required text for the course. If you are able to get a copy of the text used in the past (Charlton, R. 2008 Fundamentals of Fluvial Geomorphology. Routledge. 234 p.) you can certainly refer to that. Otherwise there are innumerable texts in the Davis library to which you can refer or additional information or to clarify concepts. Some useful sources are listed at the end of this outline.

Evaluation:	2 Quizzes @ 15% each	30%
	3 Labs @ 10% each	30%
	Final Exam (University Exam Period)	40%

Important Dates:

Sept 6 **Lectures Begin**

Oct 8 **Thanksgiving**

Oct 9-10 **Fall Study Break**

Oct 11 **Quiz 1 During class time. Location to be Announced.**

Nov 8 **Quiz 2 During class time. Location to be Announced.**

Dec 3 **Last lecture in the class**

Dec 6-21 **University Exam Period.**

There are other important dates in the University Calendar which may apply to your specific situation. It is your responsibility to ensure you are aware of these dates and act accordingly.

Lab Exercises:

There are three lab exercises that are part of your evaluation in this course. The labs are worth 10% each. They are 'paper' labs which will require you to follow instructions, complete analyses, and interpret the results.

Labs will be handed out on Learn the week before they are due and they will be discussed in class.

IMPORTANT: I understand that students will collaborate on labs as they work through them. This is encouraged. **HOWEVER IT IS INCUMBENT THAT EACH STUDENT COMPLETE THEIR OWN LAB AND HAND IN AN INDEPENDENT COPY AT THE DUE DATE**. Any attempt to copy answers from one person to another will result in an automatic grade of 0 on the lab, and the students involved will be dealt with according to University procedures.

To ensure everyone is familiar with the terminology, please see below:

Academic Integrity: To create and promote a culture of academic integrity, the behaviour of all members of the University of Waterloo is based on honesty, trust, fairness, respect and responsibility.

Plagiarism is defined as taking "intellectual property," such as words, drawings, photos, or artwork, etc., written or created by others, and passing it off as your own. When you submit a report or assignment with your name on it, it is assumed that you are the author of everything in the assignment except for those materials that are specifically identified as coming from other

sources. Therefore, if you include sentences, photos, drawings or figures from other sources in a work report or lab report, the complete reference must be cited. This applies in particular to any material cut-and-pasted from the internet or any other electronic source. Failure to cite the source completely is plagiarism, an academic infraction with serious consequences under *University of Waterloo Policy 71*.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offenses, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 - Student Discipline, http://www.adm.uwaterloo.ca/infosec/Policies/policy71.html

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 - Student Petitions and Grievances, Section 4, http://www.adm.uwaterloo.ca/infosec/policies/policy70.html

Appeals: A student may appeal the finding and/or penalty in a decision made under Policy 70 - Student Petitions and Grievances (other than regarding a petition) or Policy 71 - Student Discipline if a ground for an appeal can be established. Read Policy 72 - Student Appeals, http://www.adm.uwaterloo.ca/infosec/Policies/policy72.html

Cheating on Quizzes and Exams:

Cheating is defined for the purposes of this class as any attempt to gain advantage by either copying another students paper or using any other means to read/review material, either in paper or electronic format, or somehow communicate with others during quizzes and exams. Should a student be suspected of such behavior, they will be advised at the time and will be allowed to complete the works. Their paper, and the papers of those around the student, will be tagged for assessment. Upon grading the student will be invited to discuss the event with me prior to a decision being made. Any penalties imposed will follow University guidelines.

If at any time a student feels they have concerns I would ask you to please see me immediately so these concerns may be addressed. In instances such as these please do not wait for office hours; contact me by email.

Course Materials:

Course powerpoint notes will be uploaded on Learn prior to the lecture being given. Sufficient time will be provided for the students to review the material prior to the lecture.

Note that the powerpoint files are only one part of the course materials. The discussion that accommodates the slides during the lectures represents the core component of the course and will be the material from which the quiz and exam questions will be taken.

Additional readings may also be placed on Learn for use by the students. When this occurs an announcement will be made in the lectures. It is the responsibility of the student to access Learn to ensure they are up-to-date with the course.

Success in this course can be achieved by:

1. Reviewing the powerpoint slides prior to each lecture
2. Completing the readings prior to each lecture
3. Noting any questions about the material so you can ask during lectures
4. Use office hours to clarify anything you don't understand.

Communicating with the Professor:

The best means of communication is by attending office hours. Apart from that, please use email. A voicemail can be left at my extension but please be aware that I may not be able to access voicemail daily and your call may wait.

Contact with me is required to be from your uwaterloo.ca email address. It is a University policy to have email contact between students and the University via this means. Therefore, I will not respond to emails from other domains (Hotmail, google, etc.).

Supplementary References

Allen, P. A., 1997, Earth surface processes: Oxford, U.K., Blackwell Science, 404 p.

Birkeland, P.W., 1999, Soils and geomorphology (3rd edition): New York, Oxford University Press, 430 p.

Bland, W., and Rolls, D., 1998, Weathering: New York, Oxford University Press, 271 p.

Bloom, A.L., 1998, Geomorphology (3rd ed.): Englewood Cliffs, New Jersey, Prentice-Hall, 482 p.

Bull, W. B., 1991, Geomorphic responses to climatic change: Oxford, U.K., Oxford University Press, 326 p.

Carroll, D., 1970, Rock weathering: New York, Plenum, 203 p.

Carson, M.A., and Kirkby, M.J., 1972, Hillslope form and process: London, Cambridge University Press, 475 p.

Chorley, R. J., Schumm, S. A., and Sugden, D. E., 1984, Geomorphology: London, Methuen, 607 p.

Coates, D. R., and Vitek, J. D. (eds.), 1980, Thresholds in geomorphology: London, Allen and Unwin, p.

Cooke, R. U., and Doornkamp, J. C., 1990, Geomorphology and environmental management (2nd ed.): Oxford, U.K., Oxford University Press, 410 p.

Cullingford, R.A., Davidson, D.A., and Lewin, J. (eds.), 1980, Timescales in geomorphology: New York, John Wiley and Sons, 360 p.

Gordon N.D. et al 2004 Stream hydrology: An introduction for ecologists. Wiley 429 p.

Gregory, K. J., 1977, River channel change: New York, John Wiley and Sons, 450.

Gregory, K.J., and Walling, D.E., 1973, Drainage basin form and process: New York, John Wiley and Sons, 456 p.

Knighton, D.1998 Fluvial forms and processes. Oxford University Press. 383 p.

Leopold, L. B., 1994, A view of the river: Cambridge, Massachusetts, Harvard University Press, 298 p.

Leoplod, L.B., Wolman, G. and Miller, J. 1992 Fluvial processes in geomorphology. Dover Books. 522p.

Leopold, L.B., Wolman, M.G., and Miller, J.P., 1964, Fluvial processes in geomorphology: San Francisco, W.H. Freeman, 522 p.

Morisawa, M., 1985, Rivers: New York, Longman, 222 p.

Rice, R. J., 1988, Fundamentals of geomorphology (2nd ed.): Essex, U.K., Longman, 420 p.

Ritter, D. F., Kochel, R. C., and Miller, J. R., 1995, Process geomorphology (3rd Ed.): Dubuque, Iowa, William C. Brown, 546 p.

Rosgen, D. 1994. Applied river morphology. Wildland Hydrology,

Schumm, S.A., 1977, The fluvial system: New York, John Wiley and Sons, 338 p.

Selby, M.J., 1985, Earth's changing surface: Oxford, Oxford University Press, 607 p.

Small, R.J., and Clarke, M.J., 1982, Slopes and weathering: London, Cambridge University Press, 112 p.

Sparks, B.W., 1986, Geomorphology (3rd ed.): London, Longman, 561 p.

Sugden, D.E., and John, B.S., 1976, Glaciers and landscape: New York, John Wiley and Sons, 376 p.