

Geog 4/527: Fluvial Geomorphology
Spring 2008, Prof. Patricia McDowell
MW 14:00-15:20 and some F 12:00-4:50, Knight 41
revised 04/05/08

Course content and goals: Four themes: a) processes that shape river channels; b) ecological interactions in the channel and riparian zone; c) how channels and floodplains evolve through time; and d) human impacts on river channels. *Goals of the course: to give you an understanding of how rivers behave, and teach you how to analyze rivers and apply principles and analysis to river management problems.*

Prerequisites: MATH 111 and 112 or higher, plus one of the following: GEOG 322, GEOG 425, or GEOL 334.

Course requirements: Readings from the textbook and outside readings; two tests based on material presented in readings, lectures and discussions, and completion of lab assignments (computer-based exercises or field exercises). Use Excel and web sites in the lab assignments to analysis and interpret physical data on stream channels, and to measure and interpret of stream channel features on maps and aerial photos. Attend one required field trip; other field trips are strongly encouraged. *Graduate students are required to complete an extra lab assignment and to develop an annotated bibliography of scientific literature on a topic of their choice related to the course. Topics must be approved by the instructor, by week 4.*

Grading: Test 1 25%, Test 2 25%, exercises 50%. For undergrads, your two lowest lab scores will be dropped. For grads, all seven lab scores will be counted.

Textbook: D. Knighton, 1998, *Fluvial Forms and Processes: A New Perspective*, (Arnold Pub.); plus a few additional readings (posted on Blackboard).

Instructor:

Prof. Pat McDowell, pmcd@uoregon.edu, office at 152 Condon Hall, office hours Monday 3:30-4:30 pm, Thursday 2:30-3:30pm.

Friday meetings: This course will meet on Friday afternoons for labs or field trips on the following days: 4/4, 4/11, 5/9 or 5/16 (sign up for one), 5/30. See the schedule for details. A transportation fee will be charged for one field trip.

Expected effort: The course consists of a mixture of lecture/discussion and lab meeting for 3 hours per week, plus the Friday meetings listed above. The table below shows typical effort for the course components.

Monday-Wednesday lecture/discussion and lab	3 hours/week
Required Friday labs and field trips	About 20 hours total
Lab work (outside of in-class time)	3 hours/lab for seven labs
Reading, review of lecture notes, study for tests	5 hours/week
Optional Friday field trips	4-12 hours total

Academic honesty: You are encouraged to work with other students in the class, but all the work that you turn in for a grade must be your own and produced exclusively for this course. The use of sources (ideas, quotations, paraphrases) must be properly acknowledged and documented. For the consequences of academic dishonesty, refer to the policy at <http://studentlife.uoregon.edu/judicial/conduct/sai.htm>, the Student Conduct Code, available on the Office of Student Life web page at http://studentlife.uoregon.edu/programs/student_judi_affairs/, or ask the instructor or GTF. Violations will be taken seriously.

Geog 4/527 Schedule for 2008

Notes:

- In general, Monday class meetings are lectures with discussion, and Wednesday class sessions are labs. Exceptions are shown on the schedule.
- Reading assignments are listed *in italics* for each lecture/discussion. Readings should be done *before* the class meeting. A pdf of the lecture slides is posted before class; this is also a required reading to be done before class.
- Readings listed by page number are from Knighton (1998), *Fluvial Forms and Processes*.
- *OR* indicates “other reading”. These will be posted as pdfs on Blackboard.
- Labs will be due about a week and a half after the day they are started.

Week	Monday Class	Wednesday. Class	Friday Lab
1 3/31-4/4	Introduction to course; Streamflow <i>p. 1-8, 24-27, 65-80</i>	Streamflow(continued); introduction to Lab 1	Lab 1: Three rivers field trip, 1:00-5:00
2 4/7-11	Flow and resistance, cross-sections <i>p. 96-107</i>	Lab 2: Flow and resistance <i>OR</i>	Lab 3: Cross-section surveying; field trip to Amazon Creek, 1:00-5:00.
3 4/14-18	The sediment system, part 1 <i>p. 107-141; read 80-95 for background</i>	No class – work on labs 2 and 3 <i>(Pollyanna office hours)</i>	No class
4 4/21-25	Shear stress, sediment transport <i>p. 107-141; read 80-95 for background</i>	Lab 4: Sediment transport	No class
5 4/28-5/2	Channel morphology <i>p. 151-187, OR</i>	Test 1	No class
6 5/5-9	Bed morphology and channel classification <i>p. 187-205, 213-230, 151-153</i>	Lab 5: Introduction to stream simulator experiments; 12 or 16 Pacific Hall	Lab 5 (experiments), 12 Pacific; 1:00-3:00, 3:00-5:00 group sessions
7 5/12-16	Channel types; channel change <i>p. 205-213, 230-241</i>	Lab 6: Channel pattern and change	Lab 5 (experiments), 12 Pacific 1:00-3:00, 3:00-5:00 group sessions
8 5/19-23	Woody debris in channels; Ecological interactions in channels; <i>OR & p. 242-260</i>	Ecological interactions, floodplains and terraces (lecture with discussion) <i>p. 141-150, 261-295, OR, 302-307</i>	No class
9 5/26-5/30	River restoration <i>p. 307-329 & OR</i>	Restoration and human impacts (lecture with discussion); <i>p. 329-335, OR</i>	Lab 7: Field trip to restoration sites, noon-5:00pm
10 6/2-6	Human impacts and channel response; <i>OR</i>	Long term river change	No class
Thurs., 6/15	Take-home Test 2 due at 3:00 pm		