Geography 547
FLUVIAL GEOMORPHOLOGY
Course Objectives and Mechanics
Fall, 2017

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Office Hours: Tues. & Thurs. 11:30-12:30, or by appointment.
Method of Presentation: Lectures Tu-Th 1:15 - 2:30 pm in Room 202 Callcott.

Readings: The textbook will be available from a local print store. Additional readings drawn from various sources will be made available online on Blackboard or as hard-copy handouts.

Course Web Sites:

Non-proprietary materials: TBA
Proprietary materials (readings, exercises, etc.): Blackboard

Course Description

This course examines river and floodplain processes, forms, restoration, and management. The primary objective is to develop an understanding of how discharges of water and sediment in streams interact with river landforms to affect flooding, sedimentation, erosion, and loss of aquatic biodiversity in fluvial systems. The time scales considered in this course range from instantaneous (hourly) to the Cenozoic and Quaternary (millions of years). The course emphasizes linkages between erosion and deposition, sediment transport and storage, processes governing channel and floodplain landforms, interactions with flood hazards, conventional methods of analysis including geospatial analysis, and river management. River channels and floodplains are dynamic systems that convey water, sediment, and non-point source pollution from watersheds. Humans have significantly altered most of these systems, so anthropogenic changes and the mitigation of those changes (river restoration, rehabilitation, and stabilization) are essential topics of the course.

While upland (hillslope) processes control water and sediment loads and drive river channel responses, the emphasis of this course is on the channel systems, ranging from gullies, to tributary streams and major rivers. Tools of analysis and concepts will include basic hydraulics, hydraulic geometry, theories of morphological adjustment, sediment transport, channel network topology, channel classification, fluvial sedimentology (lab and field), flood probabilities, and applications of geographic information science (GIS and remote sensing).

Learning Objectives: You will gain an understanding of river forms and processes, linkages between sediment, channels, and flooding, spatial analysis of river systems, and how river management and restoration are conducted. Interactions between river processes and humans have been intimate throughout history and before. Designing sustainably with nature requires that rivers be fully understood and managed throughout their range of flows as potentially dangerous but valuable resources.

Grading: Undergraduates and graduates will be evaluated separately. Points will be based on two exams, exercises, field work, and (grads only) a bibliography and term paper.

Item	Undergrad	Grad
Midterm exam	20%	20%
Final exam	25%	20%
Exercises & field work	35%	15%
Course Project	10%	10%
Project Presentation	5%	5%
Attendance	5%	----
Annotated bibliography	----	10%
Term paper	----	20%

Exams: One midterm and a final examination will cover readings and lecture materials. They will concentrate on materials covered in lecture. Exams will be in multiple formats including multiple choice, essay, fill-ins, and problem solving.

Final Exam: Tuesday, Dec. 12, 12:30 pm, Rm 202, Callcott Building.

Exercises: Several exercises will be assigned. Late submissions will be penalized and work will not be accepted after graded exercises are returned except under special circumstances.

Course Project: A series of conceptual ideas and data sets will be introduced upon which you will be asked to do some analysis and produce a project.

Written Assignments (graduate students only):

Graduate students will submit an annotated bibliography with a brief abstract of your proposed term paper by Thursday, Oct. 12. Term papers are due Tuesday, Dec. 5. Details about these assignments will be provided in a separate handout.