Spring 2016 Syllabus
WR616: Hillslope Hydrology and Runoff Processes

Class times: Monday 9:00-9:50 am; Wednesday 9:00-10:40 am in NESB A302

Instructor: Stephanie Kampf
Office: Natural and Environmental Sciences Building (NESB), B248
Office Hours: Monday 2:00-3:30 pm; Wednesday 2:00-3:30 pm or by appointment
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Course overview and objectives: This is a reading and discussion-based course on runoff processes at hillslope to catchment scale. The objectives are to (1) develop in-depth understanding of runoff processes, (2) gain familiarity with a broad range of papers in hillslope hydrology, (3) develop skills in peer review of journal articles, and (4) develop skills in synthesizing information from peer-reviewed literature.

Prerequisites: At least one prior course in hydrology (WR416 or equivalent), familiarity with basic concepts and equations in subsurface flow, and familiarity with field measurement techniques in hydrology.

Text: All course readings will be from journal articles provided electronically through Canvas.

Course requirements: During the first half of class, we will read and discuss papers that cover the major concepts and themes in hillslope hydrology and runoff processes. On a rotating basis, each student will be responsible for leading paper discussions and writing paper reviews. As an ongoing class project, each student will select a focus topic, prepare an annotated bibliography and research proposal on the topic, present a brief overview of the topic to class, and lead a class discussion related to the focus topic.

Grading and expectations: You should be fully prepared for each class discussion, which means careful reading of the papers in advance of the class. You are also responsible for active, constructive, and positive participation in the class discussions. At graduate level, you should demonstrate self motivation and direction, and you should be actively challenging and questioning ideas to make every class meeting as engaging and thought-provoking as possible. Your grade will be based on:

10% Active and constructive participation in class discussions
10% Effective leadership of class discussions
30% Reviews
15% Annotated bibliography
10% Presentation on focus topic
25% Research proposal
Late assignments will not be accepted, but you will have the opportunity to revise and resubmit your assignments based on comments from the class and instructor.

**Academic integrity:** You are responsible for adhering to all university policies on academic integrity ([http://learning.colostate.edu/integrity/index.cfm](http://learning.colostate.edu/integrity/index.cfm)) and student conduct ([http://www.conflictresolution.colostate.edu/conduct-code#conduct](http://www.conflictresolution.colostate.edu/conduct-code#conduct)).

**Course outline** (subject to change):

Jan 20: Introduction and runoff processes
- How to read and understand a scientific paper:

Jan 25: Saturation excess overland flow

Jan 27: Subsurface flow

Feb 1: Evapotranspiration

Feb 3: Soil moisture
Feb 8: Channel initiation

Feb 10: Connectivity

Feb 15: Mobile and immobile water

Feb 17: Old water and new water

Feb 22: Source water

Feb 24: Transit times
Feb 29: **Tracers**

Mar 2: **Snowmelt systems**

Mar 7: **Tropical systems**

Mar 9: **Arid, semi-arid, and burned systems**

Mar 21 & 23: No class – Hydrology Days

Mar 28 – May 4: Student focus topics