WR 504 - Hydrology Discussion Group: Critical Analysis of Current Literature

Course Syllabus - Spring 2013

Course Objectives/Learning Outcomes:

1. Provide graduate students in hydrology related fields an opportunity to analyze and discuss current literature in hydrology with their peers.
2. Provide a group of peers to review our own manuscripts, to improve the writing for ultimate submittal to scholarly journals.

Instructor

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Meeting Times

To be announced.

Course Description

This is a one-credit course with the goal of graduate students analyzing and discussing current literature in hydrology related fields. The class will discuss literature that pertains to the movement and storage of water from canopy top to bedrock, including streamflow processes (see suggested topics below). The class will also draw primarily from physically/process-based literature, although comparison with empirically based literature is welcomed.

Class time will focus on discussing the content and scientific merit of current literature. In addition to scholarly articles, we will review manuscripts we individually have written and plan to submit with the goal of improving the manuscript's merit for submittal. Each class will have a discussion leader who will facilitate the class discussion.

Discussion Leader

Every week one or two students will be assigned to present a summary and lead a discussion on the assigned article(s). Each student will be asked to do this twice, with a partner or as an individual. The student(s) will send out one or two scholarly articles about the topic a week before the class to the instructor to verify its suitability. The discussion leader will briefly (5 min.) present the article and then facilitate a discussion about the content and scientific merit of the article.

The discussion leader will prepare a brief (1-2 p.) handout for the class discussion that includes the following:

1. Knowledge gap and objectives
2. Basics methods/experimental design
3. Key results

4. Important figures
5. Discussion points/questions for the class.

This handout should not be just a body of text, but broken up to be easy to read through and as simply as possible explain the objectives, methods, and results. This will aid in the class discussion. Also, students can use one of their two class discussions to review one of their own manuscripts they are hoping to submit to a journal.

Weekly Notes

Students who are not presenting articles should prepare a brief (1/2 page per article) set of notes including:

1. The primary contribution(s) that the article makes to body of scientific knowledge.
2. A list of questions that you have regarding any material that you don't understand in the manuscript.
3. A brief statement of your overall opinion of the article.

For manuscripts for submittal that are reviewed, additional comments should be added on writing style, punctuation, grammar, and any other suggestions related to it's improvement to be published.

Text:

Journal articles will be selected by the instructor and students in the course.

Grading

Grading is Pass/Fail based on article notes/discussion handouts, attendance, and participation. A 70% completion of course work (140 points) will result in a pass. Points are broken out as follows:

Component	Points	Total for semester[†]	Percentage
Article Notes	5	75	37.5%
In Class Participation	5	75	37.5%
Discussion handout	10	20	10%
Discussion facilitation	15	30	15%
Total	-	200	100%

[†]Based on fifteen weeks for class, two of which a student will be the discussion leader, and the remaining eleven will not be a discussion leader

In class participation will be graded based on students participation in the class discussion. *Discussion facilitation* points will be based on a focused effort to ensure discussion occurs. The article notes and handout will be graded based on completion from the outlined points in previous sections.

Suggested Topics

- Interception/throughfall
- Infiltration/hydraulic conductivity (unsaturated, vadose zone)
- Soil moisture dynamics
- Evapotranspiration
- Empirical modeling vs. Physically-based modeling
- Snowpack dynamics
- Streamflow generation
- Base flow
- Climate change and hydrology (e.g. rain vs. snow)
- Geologic controls
- Hyporheic zone processes (the hillslope/stream interface)
- Hydrogeology of complex terrain (e.g. deep drainage and dual porosity systems)
- Quantifying human impacts (e.g. Land Use / Land Cover Change)

Appendix 1 – Class titles that did not "make the cut." (by Zion and Ryan)

DARCY: Daring to Achieve Reading literacy in Current literature - Yeah!
HYDRO: Having Your Discussion about Reading Other literature
WATER: Wading Around Through acadEmic Reading
HYDRO - LINK: HYDROlogic Literature Investigating Notable Knowledge