

**Syllabus – Spring 2010**  
**Watershed Dynamics Through Time**  
**RNEW 5990; cross-listed in Geology, Geography, and Ecology**  
**Fridays, 2:10–3:00; 1 Credit**

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**Instructors:** Bryan Shuman, Paul Heller, Neil Humphrey and Cliff Riebe (Geology & Geophysics); Carl Legleiter (Geography) and Scott Miller (Renewable Resources)

**Readings:** Textbook (required): Environmental Hydrology (2<sup>nd</sup> Edition), by Ward & Trimble, 2004. CRC Press, 475 pp.

**Description:** The aim of this seminar is to examine watershed processes from the scale of seconds to millions of years. Using a series of readings and presentations, we will discuss physical, biotic, geochemical and climatic processes that govern watershed dynamics from diurnal flow regimes to landscape evolution. Our aim is to be as cross-disciplinary as possible as a means to enhance fruitful connections between disciplinary perspectives. The specific topics covered will be chosen/adjusted based on the students involved.

Each graduate student is expected to team up with a faculty for a given day's presentation. Everyone else is expected to read and participate in discussion.

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**Expected Course Schedule**

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15-Jan Introduction  
22-Jan Miller: Watershed and channel intro  
29-Jan Humphrey: Rivers and tectonics  
5-Feb Riebe; Is there a topographic signature of life  
12-Feb Shuman: sediment records of biogeochemistry  
19-Feb Riebe: Biogeochemistry and erosion  
26-Feb Miller: Green stuff and stream health  
Shuman: Vegetation-hydrology-climate interactions and  
5-Mar feedbacks  
12-Mar Miller: Human effects and dams  
19-Mar Spring Break  
26-Mar Legleiter: sediment delivery  
2-Apr Easter Break  
9-Apr Legleiter: river shape and behavior  
16-Apr Shuman: Long-term droughts  
23-Apr Heller: tectonics vs. climate  
30-Apr Heller: catastrophic floods