

Surficial Processes
Geol 3020
Fall, 2011

Lecture: Tues/Thurs 9:30-10:45 am; Lab Tues 2:00-4:45 pm
Instructor: Dr. John Dowd, Geology rm 125, 706-542-2383, jdowd@uga.edu
Instructor: Dr. Paul Schroeder, Geology rm 329. 706-542-2384, schroe@uga.edu
Teaching Assistant: Heather Veasey, hmveasey@uga.edu
WIP Teaching Assistant: Erin Smith, ess@uga.edu

Schedule for Part I (Dowd)

Aug 16 Introduction: Course requirements, course overview
Aug 18 Climate and precipitation
Aug 23 Vegetation: Interception/storage, stemflow, ET and PET
Aug 25 Streamflow: Discharge and velocity, stream gauging, weirs/flumes
Aug 30 Upland erosion processes
Sep 1 Statistical hydrology: Floods and droughts
Sep 6 Rainfall runoff: Processes
Sep 8 Rainfall runoff: Prediction
Sep 13 Groundwater: Terms and processes
Sep 15 Groundwater: Hydraulic approach
Sep 20 Soils – Processes / Introduction to lab
Sep 22 Soils – Processes / Taxonomy
Sep 27 Glacial processes
Sep 29 Eolian processes
Oct 4 Exam
Oct 6 Review exam
Oct 11 TBA (either WIP or Water Policy)

Labs (Dowd)

Aug 16 Introduction to WIP requirements; Railsback (3:30, 200A)
Aug 23 Science Library resources (Cynthia Prosser); Watershed delineation
Aug 30 PET
Sep 6 Field trip - Stream gauging, *in situ* sampling

- Sep 13 Statistical analysis of flow
Sep 20 Rainfall-runoff prediction
Sep 27 Seismic investigation (Dr. Hawman) - ARS
Oct 4 Soils field trip – ARS

Textbooks:

Elements of Physical Hydrology. G.M. Hornberger et al., ISBN: 0801858577
The Geochemistry of Natural Waters: Surface and Groundwater Environments. Drever
(3rd Edition), ISBN: 978-0132727907

Evaluation:

Exam (25%), Lab Exercises (10%), Quizzes (10%), Total (45%), 45% from Dr. Schroeder's portion of the course, and 10% from WIP assignments.

NB: Quizzes **may** be given at the end of each lecture. Only two unexcused missed quizzes will be allowed. Each additional quiz missed will result in an additional half letter grade reduction from overall final grade. If you have a reason to miss class, you **must** contact me **before** the class; illness must be reported by email before class.

Academic Honesty:

All students are expected to follow the standards of academic honesty detailed at <http://www.uga.edu/honesty/>

Each Class: Before each class, please review and print the material on eLearning Commons for that lecture.

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Instructor: Dr. Paul A. Schroeder, Geology office 329, (706) 542-2384, schroe@uga.edu

Laboratory Teaching Assistant: Heather Veasey hmveasey@uga.edu

Writing Intensive Program (WIP) Teaching Assistant: Erin Smith ess@uga.edu

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Schedule for part II

October 11th – Lab: Grain size analysis of a weathering sequence

October 13th - Factors in chemical weathering: Mineral assemblages (Chapter 4)

October 18th - Factors in chemical weathering: Aqueous activities (Chapter 2)

October 18th - Lab: Weathering sequences and Grain size analysis of a weathering sequence

October 20th - Factors in chemical weathering: Activity diagrams (Chapters 2 & 3)

October 21st -23rd - Class field trip*

October 25th - Factors in chemical weathering: Weathering reactions (Chapters 2 & 12)

October 25th - Lab: Recalculation of components and phases in a granitic rock

October 27th - Factors in chemical weathering: Redox reactions (Chapter 7)

November 1st - Factors in chemical weathering: Eh and pH (Chapter 7)

November 1st - Lab: Evaluating weathering intensity

November 3rd – Exam #1

November 8th – Biogeochemistry – Limits of life and biomineralization (Chapter 6)

November 8th - Lab: Tanyard Creek Water study

November 10th - Biogeochemical cycles - Oxygen Isotopes (Chapter 14)

November 15th - Biogeochemical cycles – Box models (Chapter 1)

November 15th - Lab: Biogeochemical cycles – Oxygen Isotopes

November 17th - Biogeochemical cycles - Carbon

November 29th - Biogeochemical cycles - Sulfur

November 29th - Lab: Phase I assessments write up

December 1st - Biogeochemical cycles - C, Fe, S, and O

December 13th – Exam #2: Due at 11 AM (or sooner) under Schroeder's office door.

*Field trip. Click [here](#) for details. The UGA Geology department will provide some resources to offset the cost of this trip. You are expected to register yourself including the nominal student fee. If you cannot participate in this field trip, then there are several alternatives: These include participation in any sanctioned river/lake cleanup/monitoring event such as those sponsored by Rivers Alive. If this latter option is chosen, then a 1-page summary is required in which the purpose and outcome of your activities are summarized. Turn this summary in to Dr. Schroeder within one week after the event.

Grading will be based on your total score where, 45% will come from Dr. Dowd, 45% will come from Dr. Schroeder, and 10% from your WIP project.

The following weighting factors will be used for Schroeder's part

Lab exercises (10%) + Exam #1 (15%) + Exam #2 (15%) + Quizzes (5%) = Total (45%)

Quizzes will be administered at the end of most every lecture. Only two unexcused missed quizzes will be allowed for the entire semester. Each additional missed quiz will result in one-half grade reduction from overall final grade. No makeup exams are allowed unless a hardship recommendation is received from the Office of the Vice President for Student Affairs.

All members of the University community have a responsibility to uphold and maintain an honest academic environment and to [report](#) when dishonesty occurs. Where suspected violations of the academic honesty policy occur, appropriate procedures are designed to protect the integrity of the academic process while ensuring due process. The University's academic honesty system is an academic process founded on educational opportunities. You have agreed to the following UGA Student Honor Code: "I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others."