

WATERSHED SYSTEMS SCIENCE - UNIV 299/GEOL 299/BIOL 299/ENST 299
TENTATIVE SYLLABUS

| Week | Topic | Lab |
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| 1 | INTRODUCTION Questions - Directions Watershed Origins Tectonics - Appalachians Basin Style - Geologic Control | Field trip to Williamsport - Overview |
| 2 | EVOLUTION OF DRAINAGE Rainfall-Runoff, Infiltration, Overland Flow Soils, Colluvium Hillslope Hydrology and Linkages Basin Evolution and Experiments | Field trip to Roaring Creek - Headwaters, Soils, Infiltration |
| 3 | SURFACE WATER HYDROLOGY Basin Morphology and Networks Discharge, Rating Curves, Gages Flood Hydrograph Hydrograph Attenuation Water Balance - Flood, Drought | Field trip to Roaring Creek - hydrographs, gages |
| 4 | FLUVIAL PROCESSES Flow in alluvial channels Channel Morphology/Pattern Sediment Entrainment/Transport | Field trip to Roaring Creek - Channels |
| 5 | FLUVIAL PROCESSES Isotopes/Legacy Sediments Sediment Storage - Sites, etc. Channel Adjustments | PROJECT |
| 6 | WATER CHEMISTRY Mineral Solubility & Dissolution Rates Isotopes | PROJECT |
| 7 | WATER CHEMISTRY Precipitation/Acid Precipitation Geology and Buffering Water-Rock-Colluvium Interactions Background/Toxicity | Water Chemistry |
| 8 | AQUATIC HABITATS & ECOLOGY Freshwater Biology Habitats and Dynamics - relation to fluvial processes & chemistry | Field trip to Roaring Creek - Stream Ecology |
| 9 | AQUATIC HABITATS & ECOLOGY Ecosystem Processes - Organic Matter & Nutrients Spatial and Temporal Variation, RCC | Stream Ecology |
| 10 | FLOOD IMPACTS Frequency, effects, response, controls, recovery Physical, chemical, & biological | PROJECTS |
| 11 | RIVERINE WETLANDS & ALLUVIAL AQUIFERS Wetland Processes - Ecology & Climate Bank Storage - River Relationships | Field trip to Montandon Wetlands |
| 12 | ANTHROPOGENIC IMPACTS Dams, Water Withdrawals Channelization | PROJECT |

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| 13 | ANTHROPOGENIC IMPACTS Land-Use Impacts - Logging, Urban, Agriculture | Field trip to Grays Run, Buffalo Creek, Roaring Creek |
| 14 | ANTHROPOGENIC IMPACTS Abandoned Mine Drainage | Field trip to Shamokin Creek |
| 15 | SUMMARY & PROJECT PRESENTATIONS | |