

Syllabus

1. Course Information

Title:	Introduction to Watershed Management	
Course Number	NRM F370	
Credits:	3	
Prerequisites:	NRM F101 or instructor approval	
Location:		and nearby field sites
Lecture:	Tuesday/Thursday 11:45 am	12:45 pm
Lab:	Friday 11:45 am	2:45 pm

2. **Instructor:** Christina Buffington, M.S., M.Ed.
203E Akasofu, UAF Main Campus
Office hours by appointment
907-474-2794
cbuffington@alaska.edu

Course Description: What happens on land affects the water and everything that lives in it; this central concept of watershed management frames every aspect of the course. Students will work with local watershed to sample water quality using Global Learning and Observations to Benefit the Environment (GLOBE) atmosphere, hydrology, and soil protocols and assess runoff and groundwater pollution prevention practices. After learning to calculate inputs and outputs in the hydrologic cycle at the local watershed scale,

water quality, and best management practices.

An increased awareness of social-ecological land use changes to watersheds.

An increased resource base, including physical, conceptual, and mathematical models, for watershed education and outreach, watershed planning, non-point source pollution prevention, scientific investigation, and mathematical literacy.

An increased understanding of and ability to implement monitoring protocols (including GLOBE or other protocols for monitoring atmosphere, hydrology, water quality, land cover, soils, frost, and soil active layer).

Designed and implemented an inquiry-based monitoring investigation in collaboration with a scientist or watershed manager to address an identified watershed-related issue.

Presented a project and published a poster on the GLOBE website, with the opportunity to participate in the International Virtual Science Symposium.

Earned the EPA Watershed Academy Web Training Certificate.

- 5. Instructional Methods:** The intensive semester-long course will consist of lectures, guest presentations, field studies, discussions, physical, conceptual, and mathematical models, and hands-on inquiry learning activities with mentoring from NRM instructors, scientist experts, and watershed managers. The field implementation phase will include a Chena River raft trip with data collection and inspection of shoreline management practices, data collection at campus field sites, and a visit to Cripple Creek, the site of a channel bypass and channel restoration project. Students will use learning games, models, simulations, and to teach watershed management concepts to school children and the public. For this reason, instructional methodology incorporates aspects of the 5E Instructional Model.

6. Course Readings and Materials:

Texts:

University Corporation for
Atmospheric Research. Boulder, Colorado, USA. www.GLOBE.gov

K.N. Brooks, P.F. Ffolliott, J.A. Magner. 2013. Hydrology and the Management of Watersheds 4th Edition. Wiley-Blackwell Publishing. ISBN-13: 978-0-4709-6305-0

Weekly Readings: found on the Course Website on Blackboard

7. Course Calendar and Instructional Outline:

Students will be responsible for reading course material each week and completing two graded assessments (assignments, rubrics, projects, and/or exams) per week according to the following course calendar and instructional outline (subject to modification). Learning target handouts and pop quizzes will be employed, but these are ungraded assessments to gauge preparation and understanding.

NRM F370 INTRODUCTION TO WATERSHED MANAGEMENT

Week Dates <i>Readings</i>	<u>Lab</u>	EXPLORE Game, Demonstration, Model, Equation, Activity, Simulation	EXPLAIN Lecture	<u>ELABORATE</u> Lab/Field Protocol	EVALUATE Assignments, Rubrics, Projects, Exams	DUE DATES
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Equation 4.22: $ET = (PET) f(AW/AWC)$

Due 9/16 in Blackboard