

SYLLABUS
MES Freshwater Ecology, Winter 2014
<http://www.evergreen.edu/mes>

MASTER OF ENVIRONMENTAL STUDIES

THE EVERGREEN STATE COLLEGE

Mondays 6-10 pm

Lecture: Lab I 1050 (sometimes we will meet in LH2)

Faculty	Office	Telephone	Email	Office Hr(s)
Carri LeRoy	Lab II, 3261	360-867- 5483	mailto:leroyc@evergreen.edu	Mon. 4-5pm or by appointment

Description

In terms of providing habitat for threatened and endangered species, freshwater environments rank as the most imperiled ecosystems on Earth. Historically and currently used for transportation, irrigation, energy production, waste disposal and recreation, it is important to understand how freshwater systems function and how we can work toward ecological restoration of freshwater habitat. This program will focus on the foundations of and research methods in freshwater ecology. Topics covered will include basic water chemistry, stream flow dynamics, primary productivity, aquatic insect ID, trophic dynamics, ecological interactions, organic matter and nutrient dynamics, current threats to freshwater ecosystems and ecological restoration. The course will focus on current research in ecosystem ecology, community ecology and ecological genetics in riparian zones, streams, rivers and lakes. Seminar readings will focus on a recent large-scale restoration project on the Elwha River. Field trips will be undertaken regardless of weather conditions to local freshwater environments and the course will include several hands-on lab activities.

Required Readings

1. Allan, J.D. and M.M. Castillo. 2007. *Stream Ecology: Structure and Function of Running Waters*, 2nd Edition (Springer, ISBN: 978-1402055829).
2. Mapes, L.V. 2013. *Elwha a River Reborn* (Mountaineers Books, ISBN: 978-1594857348).
3. OPTIONAL: Merritt, R.M., K.W. Cummins, and M.B. Berg. 2008. *An Introduction to the Aquatic Insects of North America*, 4th Edition. (Kendall-Hunt Publishing, ISBN: 978-0757563218)

Students can purchase these books at the bookstore or order them online (but they must be in-hand for the first class period!). Additional readings, as assigned, will be posted on the Moodle site.

Typical Class Schedule

Each 4-hour class session will typically (but not always) consist of the following activities:

- lecture (~90 min),
- break (with a part of a movie - 30 min),
- seminar (~60 min - only twice),
- workshop (~90 min)

Typical Weekly Assignments

All students are expected to complete the assigned readings prior to class. I will be able to lecture in more depth if students have read the assigned readings prior to class. In addition, the foundation of an effective seminar discussion is a group of participants who have read the material carefully and formulated some key questions and responses to the reading.

All students should prepare for seminar with a written response to the following two questions (1-3 sentences for each question) and submit these responses in their final portfolio.

1. Among the various claims the author(s) makes, state one you find especially compelling or flawed. Say how you might further support a compelling claim or counter a flawed claim.
2. Articulate 3 questions from the reading that you would like to discuss in seminar.

There will be a weekly "preparedness" quiz on Moodle available prior to the 6 pm lecture. This will provide students with weekly examples of the types of questions they might expect on midterm and final exams covering freshwater ecology readings and lecture materials. The midterm exam will occur on Monday of week 5 and the final exam will occur on Monday of week 10.

Term Research Assignment: "Rivers of Hope"

As a class we will research large river systems in the Pacific Northwest. For each river system, we will describe it physically (drainage area, land use, hydrograph, parent material, etc.), biologically (dominant riparian vegetation, dominant fish species, productivity and seasonal patterns, endangered species presence, invasive species presence, etc.), and culturally (history of the river name, historical land ownership and land-use, traditional ecological knowledge, etc.). We will describe reported cases of environmental impacts, news stories on damaging conditions, and the current status of the river in 2013. Finally, we will write about restoration projects along the river, success stories and project future conditions. We will compile these profiles into an MES book titled, "Rivers of Hope," - we will add to the rivers written about in 2013: Fraser, Skagit, Snohomish, Puyallup, Nisqually, Deschutes, Chehalis, Toutle, Sandy, Klamath, Trinity, and Eel.

All writing assignments should be:

- Word-processed, double-spaced, two-sided, 11 or 12 point font, 1" margins, spell-checked, and proof-read.
- In top right corner: Your name, date of submission
- Centered Paper Title
- Pages should be numbered (in Word, use Header/Footer feature).

Course Portfolio

Students will collect and organize all their work for this course as part of a course portfolio, which they will submit to their faculty during the 5th week of the quarter and at the last class meeting.

Evaluation

Students in the MES program are evaluated consistent with the college's evaluation procedure. Student work will be assessed on an on-going basis throughout the quarter. During the 5th week of the Fall Quarter, faculty will evaluate all student work and 5th Week Warning Letters will be sent to students whose performance might result in credit loss. Assessment is based on completion of assigned work, quality of that work, attendance, participation and professionalism consistent with graduate work. During Evaluation Week, which follows the 10th week of the quarter, students must meet with their faculty. The faculty will assess the student's work and reflect on the student's self-evaluation. A written Faculty Evaluation of Student Achievement will be filed and credit awarded (or not).

Field trips

We will have one all-day field experience in this course regardless of weather. Due to the early darkness, this field trip will need to be on a Saturday. This trip will make up for class time missed due to two Monday holidays in winter quarter. Please have the following gear available for the field trip:

Field notebook (small - rite-in-the-rain)
Waders or tall rubber boots
Field guides
Invertebrate guides
Markers, pencils
Rain gear
Day pack

Field trip date will be:

February 22: Olympic Peninsula, 8am-6pm