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ENSC 105N.01: Environmental Science SERV

Leonard Broberg

University of Montana - Missoula, len.broberg@umontana.edu

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ENSC 105 Environmental Science

Fall 2018

Instructor: Len Broberg, Rankin Hall 104, 243-5209, len.broberg@umontana.edu
Office Hours M 11-1230, W 2-330 pm

Teaching Assistants:

Jane McGuire, jane.mcguire@umontana.edu, Ofc Hrs: Tu 11-1230, F 930-1030

Kitty Galloway, kitty.galloway@umontana.edu, Ofc Hrs: W 130-330, Th 930-1030

Purpose: This course reviews the major fields of environmental science in the context of crafting sustainability solutions. Students will participate in field trips and community service to experience the application of environmental science principles in practice.

Readings:

- 1) Christensen and Legee, Environment and You 2nd OR 3rd Edition, Pearson (*E&Y*) (all readings below from the 2nd edition)
- 2) Moodle readings as assigned ([Look in Moodle Here](#))

Tentative Schedule

Week 1 Sustainability and Community Service

- August 28- Definition of sustainability
- August 30- UM sustainability practices- Guest Speaker Eva Rocke- read Chapter 1 *E&Y*

Week 2 Physical and Biological Aspects of the Environment

- Sept 4 Physical Env't- read Chapter 3 *E&Y*
- Sept 6 Population Ecology and Human Population- read Chapter 4.1-4.4 and 5 *E&Y*

Week 3 Transportation

- Sept 11 Current transportation modes and alternatives-Chapter 15.8 and 16.6 *E&Y*
- Sept 13 Electric bicycle 1 lab/Discussion

Week 4 Water Quality and Reclamation

- Sept 18 Water Quality and Toxic Pollution- Chapter 11.1-11.4 *E&Y*
- Sept 20 Guest Speaker Joe Griffin- The Clark Fork Superfund Cleanup
- Sept 22 Field Trip 1 Cleaning Up the Upper Clark Fork

Week 5 Water Quality Solutions

- Sept 25 Nutrient Reduction/Land Application Chapter 11.6-11.8 and Chapter 11 Agents of Change *E&Y*
- Sept 26 Field Trip 2 Missoula Sewage Treatment Plant and Land Application Experiment
- Sept 27 Test 1

Week 6 Climate Change

- Oct 2 Climate Change Science and Mitigation Chapter 9 *E&Y*
- Oct 4 Electric bicycle 2 lab/Discussion

Week 7 Energy 1

- Oct 9 Traditional Energy- Coal, Nuclear and Natural Gas Chapter 14 *E&Y*
- Oct 11 Guest Speaker- Coal
- Oct 13 Field Trip 3 Mike Horse Clean Up

Week 8 Energy 2

- Oct 16 Solar power Chapter 15-15.2 *E&Y*
- Oct 17 Field Trip 4 Campus energy tour
- Oct 18 Solar power lab/Discussion

Week 9 Climate Solutions

- Oct 23 Wind power, biomass and sustainability trajectories Chapter 15.3-Agents of Change *E&Y*
- Oct 25 Recycling paper lab/Discussion

Week 10 Sustainable Agriculture

- Oct 30 Test 2
- Nov 1 Sustainable Agriculture- Guest Speaker

Week 11 Air Pollution

- Nov 6 No class- Election Day
- Nov 8 Air pollution and its control- Chapter 10 *E&Y*

Week 12 Waste Management

- Nov 13 Missoula Zero Waste Initiative- Guest Speakers
- Nov 15 Waste Management issues- Chapter 17 *E&Y*

Week 13

- Nov 20 Recycling plastic lab/Discussion
- Nov 22 No Class- Thanksgiving

Week 14 Ecosystems and Communities

- Nov 27 Ecosystems/Geography of Life-Chapter 6 and Chapter 7 *E&Y*
- Nov 29 Biological communities/Biodiversity Conservation- Chapter 8 *E&Y*

Week 15 Climate Change Solutions- Science and Policy

- Dec 4 TBA
- Dec 6 Class Review/Community Service reflection

Final Exam (Test 3) Monday December 10 3:20-5:20 pm in classroom

Learning Objectives

- 1) Students will be aware of campus & community opportunities to make a difference (Service Learning)
- 2) Achieve introductory level scientific literacy
- 3) Improve Skills in critical thinking, research & self-instruction
- 4) Understand the scientific basis of environmental issues, policies, laws
- 5) Will gain practice in informed, active participation in social decisions
- 6) Will understand and practice service to their community and the earth

Tests

Tests will be short-answer essay or based on quantitative problem solving.

Field Trips

Students are *required to attend* one full day field trip (September 22 or October 13) **or** 2 afternoon field trips (Sept 26 and October TBA). Spots for each field trip are limited and students must sign up by 2 days before the field trip in an open slot. Spots are only available as long as they are not filled. Instructors recommend that students decide early and sign up to get the lab they prefer.

Students must complete a field trip report that reflects on the field trip experience and what the student learned from the trip. For full day trips there is a two page minimum for the report and for half days a one page minimum. Field trip reports should be typewritten in 12 point font.

If you miss a field trip for any reason other than verified health or death in the family reasons there are no makeups! Verification is required through a doctor's note or a published obituary.

Labs

Students are required to attend one lab of the 5 labs listed on the syllabus. Limited space is available for each lab and students must sign up at least 2 days in advance of the lab, but spots are only available as long as they are not filled. Instructors recommend that students decide early and sign up to get the lab they prefer.

Students will complete a lab report handed out at the time of the lab due at a time set in the lab session.

Community Service

This course has a service learning designation and therefore students are required to complete 15 hours of preparation, participation and reflection during the semester. The instructional staff will make you aware of service opportunities and guide you in your preparation, selection, completion and reflection about the experience.

Students that are not participating in a lab must attend a discussion section at that time on the syllabus in the classroom that will deal in part with the completion of the community service obligation.

Attendance and Participation

Attendance will be taken in various ways each class. It will negatively affect your points for class participation if you have unexcused absences. Likewise, if you fail to participate in class activities it will negatively affect your grade.

Disruption of the class by student behavior is unacceptable and will be referred to Student Affairs for appropriate action. See the student conduct code link below for more information.

Extra Credit

Opportunities to earn extra credit will be announced during the semester. Extra credit work must be completed before Dec 6, 2018.

Disability modifications

The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and [Disability Services for Students](#). If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or call 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

Student Conduct Code

Plagiarism or other misconduct as defined in the [Student Conduct Code](#) will result in sanctions possibly including receiving a failing grade for the course and referral to a formal misconduct process

Changes to Requirements

The instructor reserves the right to make changes or additions to the requirements in the syllabus with prior notice and announcement in class.

Grading

• Tests	3 x 100 pts each	300 points
• Lab		25 pts
• Field trip		50 pts
• Community Service		75 pts
• <u>Class participation</u>		<u>50 pts</u>
Total		500 pts