Fall 9-1-2020

ENSC 105N.01: Environmental Science

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ENSC 105: Environmental Science, Fall 2020

Instructor: Katie Nelson, katherine3.nelson@umontana.edu
Office Hours via Zoom
Tuesday & Thursday 1:30-3pm Passcode: 689323
Teaching Assistants: Sawyer Connelly, sawyer.connelly@umconnect.umt.edu
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Office Hours via Zoom
Monday 11-12:30am Passcode: 770077
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Purpose

This course reviews the major fields of environmental science in the context of crafting sustainability solutions.

Learning Objectives

- Achieve introductory level scientific literacy
- Improve skills in critical thinking, research & self-instruction
- Understand the scientific basis of environmental issues, policies, laws
- Understand the steps they can take as individuals and a society to achieve sustainability
- Students will be aware of campus & community opportunities to make a difference

Readings

- Christensen and Leege, Environment and You 2nd OR 3rd Edition, Pearson (E&Y)
- Additional readings as assigned in Moodle.

Tentative Topics and Schedule

Before each class, please visit Moodle, which you can access at MY UMT. There you will find a "to-do" list of readings and assignments to complete before each class begins.

COURSE ORIENTATION

Week 1 Course Intro

- Aug 20 Course Intro- Definition of sustainability, scientific method

Week 2 Sustainability and the Physical Environment

- Aug 25 UM sustainability practices- read Chapter 1 E&Y (Guest Speaker: Eva Rocke, UM Sustainability Office)
- Aug 27 Physical Environment- Chapter 3 E&Y

ECOSYSTEMS

Week 3 Populations, Communities, and Ecosystems

- Sept 1 Population Ecology and Human Population- Chapter 4.1-4.4 and 5 in E&Y
- Sept 3 Communities and Ecosystems / Geography of Life- Chapters 6-7 in E&Y

Week 4 Biodiversity

- Sept 8 Biological Communities/Biodiversity Conservation- Chapter 8 in E&Y
- Sept 10 Discussion & Review
  - Field Journals Due

Week 5 Assessment

- Sept 15 1st Celebration of Knowledge!

POLLUTION & WASTE

Week 5 Air

- Sept 17 Air- Chapter 10

Week 6 Water & Environmental Justice

- Sept 22 Water quality- Chapter 11.1-11.4, 11.8 in E&Y
- Sept 24 Environmental justice- Chapter 18.3 in E&Y

Week 7 Reclamation & Restoration

- Sept 29 Mine reclamation & toxics management in Montana
- Oct 1 Restoration

Week 8 Waste Management

- Oct 6 Waste- Chapter 17 in E&Y, Plastics Lab with Len Broberg
- Oct 8 Missoula Zero Waste Initiative

Week 9 Assessment

- Oct 13 Discussion & Review, Plastics Lab Report Due!
- Oct 15 2nd Celebration of Knowledge!

ENERGY & CLIMATE CHANGE

Week 10 Agriculture and Energy

- Oct 20 Sustainable agriculture- Chapter 12 in E&Y (Guest Speaker: Caroline Stephens, UM PEAS Farm)
- Oct 22 Nonrenewable energy and electricity- Chapter 14 in E&Y

Week 11 Climate Change

- Oct 27 Climate change science and mitigation- Chapter 9 in E&Y (Guest Speaker: Peter McDonough, UM Climate Change Studies Program)
- Oct 29 Climate change negotiation simulation- (Guest Speaker: Peter McDonough, UM Climate Change Studies Program)

Week 12 Renewable Energy

- Nov 3 Election day! No class.
  - GO VOTE!
- Nov 5 Discussion & Review

Week 13 Renewable Energy

- Nov 10 Solar power, Wind power, and policy- Chapter 15.2, 15.5, 15.9 in E&Y
  - Renewable Energy Lab with Len Broberg
- Nov 12 Hydro power- Chapter 15-15.3 in E&Y

Week 13 Efficiency

- Nov 15 TBA, Renewable Energy Lab Report Due!
- Nov 17 Energy efficiency- Chapter 16.5, 15.8, 16.8 in E&Y (Guest Speaker: Skander Spies, McKinstry Co.)

Week 14 What now?

- Nov 24 Setting the scene
- Nov 26 Review

Week 15 Final Exam:

- 3rd Celebration of Knowledge!

Grading

• Celebrations of Knowledge (3 x 100 pts each)	300 pts	60%
• Field Observations (3 x 20 pts each)	60 pts	12%
• Labs (2 x 30 pts each)	60 pts	12%
• Class Participation	80 pts	16%
Total Points available	500 pts	100%

CELEBRATIONS OF KNOWLEDGE

Studies show that the practice of retrieving information is one of the best methods for effective learning. Celebrations of Knowledge will offer that practice during this course. These assessments will take the form of short-answer essays or quantitative problem solving. Each Celebration will be cumulative. The last Celebration of Knowledge will be during the Final Exam period.

FIELD OBSERVATIONS

Students will complete five field observations. A more detailed assignment description will be made available in Moodle.

LABS

Students will complete a two lab reports. A more detailed assignment description will be made available in Moodle.

ATTENDANCE & PARTICPATION

Attendance will be taken each class, whether we meet in person or remotely. It will negatively affect your grade if you have unexcused absences. If you cannot come to class, let your instructor or TAs know as soon as possible. (See below for information related to Covid-19).

As much as we want to see you in class, we want to hear from you as well. If you fail to participate in class activities it will negatively affect your grade. Participation includes asking questions about course material, actively engaging in class activities, and possibly participating in an online discussion forum (if/when we go remote).

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 November 25, 2020.

Accessibility

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.

Covid-19 Safety

We expect everyone in the classroom (students, guest speakers, TA's and instructors) to all follow safety protocols as listed below. This is for everyone's safety. (Mostly asymptomatic) transmission is likely to occur in a campus setting, whether it be in school, at work, or while socializing. We all need to do our best to minimize that transmission. Even if you are young and healthy and your risk of severe infection is low, it is not zero, and we need to be mindful of starting a chain of transmission that may eventually infect someone who is high risk. It is a challenging time, but we are in this together!

UM Safety Guidelines:

- Mask use is required within the classroom.
- Each student is provided with a cleaning kit. The expectation is that students will clean their personal work space when they arrive for class, and before they leave the classroom.
- Classrooms may have one-way entrances / exits to minimize crowding.
- Students should be discouraged from congregating outside the classroom before and after class
- Specific seating arrangements will be used to ensure social distancing and support contact tracing efforts.
- Class attendance will be recorded to support contact tracing efforts.
- Drinking liquids and eating food is discouraged within the classroom (which requires mask removal).
- Information on the nearest "refill" stations for cleaning supplies/hand sanitizer if applicable.
- If the class is being recorded, students must be notified of the recording.
- Stay home if you feel sick and/or if exhibiting COVID-19 symptoms.
- If the student is sick or displaying symptoms, please contact the Curry Health Center at (406) 243-4330.
- Up-to-Date COVID-19 Information from the University of Montana
    - UM Coronavirus Website: UMT Corona Virus Information
    - UM COVID-19 Fall 2020 website: UMT Covid 2020
- Strongly encourage students to remain vigilant outside the classroom in mitigating the spread of COVID-19.

Changes to Requirements

We will begin this course with in-person instruction. It is possible that we may transition to remote learning during the semester. In the event that happens, you will be notified at your University of Montana email and via Moodle. If we go remote, it is likely that we will hold synchronous classes over Zoom. When/if that time comes, we will provide you with detailed instructions and technology requirements, how to access necessary technology at UM, and how to continue learning in this class.

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