

UNIVERSITY OF MARY WASHINGTON -- NEW COURSE PROPOSAL

Electronically submit this completed form with attachments in one file to the Chair of the College Curriculum Committee.

COLLEGE (check one):	Arts and Sciences <input checked="" type="checkbox"/>	Business <input type="checkbox"/>	Education <input type="checkbox"/>
Proposal Submitted By: M. Szulczewski, C. Whipkey		Date Prepared: 11/10/2015	
Course Title:	Introduction to Environmental Science II		
Department/discipline and course number*:	EESC 120		

*This course number must be approved by the Office of the Registrar before the proposal is submitted.

Number of credits proposed:	4	Prerequisites:	EESC 110				
Will this be a new, repeatable "special topics" course? (Do you want students to be able to take this new course more than once if the topic changes?)			<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; text-align: center;">NO</td> <td style="width: 50%; text-align: center;">YES</td> </tr> <tr> <td style="text-align: center;">X</td> <td></td> </tr> </table>	NO	YES	X	
NO	YES						
X							

Date of first offering of this new course: FALL SEMESTER, year	SPRING 2017				
Proposed frequency of offering of the course:	Every spring semester				
List the faculty who will likely teach the course:	M. Bass, M. Szulczewski, C. Whipkey, B. Kisila				
Are ANY new resources required?	<table style="width: 100%; border: none;"> <tr> <td style="width: 25%; text-align: center;">NO</td> <td style="width: 25%; text-align: center;">YES</td> </tr> <tr> <td style="text-align: center;">x</td> <td></td> </tr> </table> <i>Document in attached impact statement</i>	NO	YES	x	
NO	YES				
x					

This new course will be (check all that apply):			
Required in the major	<input checked="" type="checkbox"/>	General Elective	<input type="checkbox"/>
Elective in the major	<input type="checkbox"/>	General Education**	<input checked="" type="checkbox"/>

***AFTER* the new course is approved, a separate proposal must be sent to the General Education Committee.

Catalog Description:

EESC 120 – *Introduction to Environmental Science II* (4)

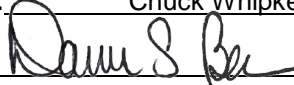
Prerequisite: EESC 110. Scientific examination of human impacts on the environment, including population growth, pollution, climate change, and other environmental problems and possible solutions. Laboratory.

COURSE HISTORY			
Was this course taught previously as a topics or experimental course?	YES	<input type="checkbox"/>	NO
	<input checked="" type="checkbox"/>		<input type="checkbox"/>
Course Number and Title of Previous Course	Semester Offered	Enrollment	
<p>CHECK HERE if the proposed course is to be equated with the earlier topics or experimental offerings. This means that students who took the earlier "topics" course will only be able to take the new course if they made a C- grade or lower in the earlier course.</p> <p>NOTE: If the proposed course has not been previously offered as a topics or experimental course, explain in the attached rationale statement why the course should be adopted even though it has not been tried out.</p>			

REQUIRED ATTACHMENTS:

1. **Rationale Statement** (Why is this course needed? What purposes will it serve?)
2. **Impact Statement** (Provide details about the Library, space, budget, and technology impacts created by adding this new course. Include supporting statements from the Library, IT Department, etc. as needed.)
3. **Sample Syllabus**

Department Chair Approval: Chuck Whipkey Date: 11/11/2015

CCC Chair Approval:  Date: 11/18/15

UCC Chair Approval: Patricia Reynolds Date: 12/7/15

1. Rationale Statement for proposed new class, EESC 120 *Introduction to Environmental Science II*.

We are proposing this new course to be the second part of a two-course sequence in Environmental Science that will fulfill the General Education Natural Science requirement. This two-course sequence will consist of the existing course, EESC 110 *Introduction to Environmental Science* as the prerequisite course, followed by the proposed EESC 120 *Introduction to Environmental Science II*. If and when EESC 120 is approved by the UCC, we will submit a proposal to the General Education Committee to allow the EESC 110 – EESC 120 sequence to fulfill the Natural Science two-course requirement.

We are also proposing that EESC 120 will be a major requirement for our Environmental Science Natural Science Track and Environmental Science Social Science Track majors.

There are several distinct reasons our department is proposing this new course.

A. There is a wide range of topics that fall under the umbrella of Environmental Science, including pollution of air, water, and soil; effects of climate on biodiversity; the dynamics of human population growth; the impact of urbanization on ecological systems, and many others. Our one introductory level course, EESC 110, is able to provide a concise overview of many of these topics but by necessity must omit some very important matters and give other areas much less attention than they deserve.

The addition of EESC 120 as the second component of a two-course sequence will allow us to bring topics under discussion that we were not able to cover in the single course, and we will be able to deepen the coverage of other topics.

B. In addition, because EESC 110 is a non-lab course we are unable to give our students hands-on experiences that allow for an understanding of the role of hypothesis formation, data collection, and analysis that are essential to understanding how the scientific method is applied to environmental issues. With our new hands-on lab and online activities in EESC 120, we will be able to better fulfill the

goals of allowing students to participate in the scientific method via the generation and analysis of data.

C. Our department has a long-standing Natural Science Gen Ed sequence of two geology lab classes: Geology 111 *Intro Geology* (with LAB) – Geology 112A *Evolution of the Earth* (with LAB). Soon after UMW reduced its Natural Science requirement to *one lab class + one lab- or non-lab class*, we created the Gen Ed sequence of EESC 110 – Geology 112A to meet student demand. This arrangement was always intended to be a temporary one because it required adding remedial material for EESC 110 students taking Geology 112A that is not needed for students pursuing our original GEOL 111– Geology 112A sequence.

However, until recently staffing and room availability issues have prevented us from developing the second semester Environmental Science laboratory class we always intended. We are now confident that we can address those issues and are proposing EESC 120 as the logical follow-up to EESC 110. Not only will this new class benefit students with an interest in environmental issues by allowing them to more fully explore those topics, it will streamline the GEOL 111 – Geology 112A sequence because remedial geological material will no longer be needed to accommodate EESC 110 students.

2. Impact Statement

This new course will have no library, space, budget, or technology impacts beyond those that can be handled internally by our department.

Transition Plan

We anticipate that just one section of the new class, taught by Melanie Szulczewski, will be offered in Spring 2017, as we pilot the new laboratory experiences. For that reason, we plan to continue to offer sufficient sections of Geology 112A to accommodate the needs of the Fall 2016 EESC 110 class. If and when EESC 120 is approved by the UCC, we will submit a proposal to the General Education Committee to allow the EESC 110 – EESC 120 sequence to fulfill the Natural Science two-course requirement in time for the Spring 2017 semester.

In Spring 2018, we will increase the number of EESC 120 sections as other instructors (including probably Michael Bass, Ben Kisila, and Chuck Whipkey) begin to teach the class. Because the new

EESC 120 course will replace Geology 112A as the follow-up to EESC 110, we will drop an equal number of Geology 112A sections as we add EESC 120 sections. Currently, full-time faculty members teach about 120 EESC 110 students each fall. Assuming this number remains constant we will need 5 sections (24 students per section) of the proposed lab course, which can be handled by reassigning faculty.

During 2016-2017, our department will propose to the appropriate curriculum committee that Geology 112A be dropped as a major requirement for the Environmental Science Social Science and Natural Science majors, effective in the 2017-2018 catalog. We will also propose to the General Education Committee that the EESC 110 – Geology 112A sequence be dropped from the list of approved Natural Science Gen Ed courses.

In the past few years, our department has been asked by the administration to add an additional 60 seats in EESC 110 each fall, for which we have hired an adjunct instructor. These extra seats have necessitated the hiring of another adjunct in the spring to teach the follow-up Geology 112A class. Our new course will actually simplify this situation, because the same adjunct could potentially teach both EESC 110 and its natural follow-up course, EESC 120. However, as is current practice, we will insist that adequate adjunct resources for both fall and spring courses must be in place before we will accede to any Administration requests.

All members of the Earth and Environmental Sciences Department have been informed of, and are in agreement with, our plans.

3. Syllabus

EESC 120 Introduction to Environmental Science II (4 Credits)

Tuesdays & Thursdays 11:00am-12:15pm

Plus Weekly Lab

Spring 2017

Professor: Dr. Melanie Szulczewski

Office: Room 435A Jepson Science Center

Telephone: 540-654-2345

E-mail: mszulcze@umw.edu

Office Hours: Mon. 1:30-4:30pm, Tues. 12:30-1:30pm, Fri. 2-3, and by appointment

Required Readings

- ❖ *Environmental Science: Toward a Sustainable Future*, 12th edition, Richard Wright and Dorothy Boorse, Benjamin Cummings-Pearson, Upper Saddle River, New Jersey, 2013.
- ❖ *Intro to Environmental Science Lab Workbook* (UMW)
- ❖ Mastering Environmental Science website
- ❖ Science articles, documents, and websites may be assigned or referenced (all available through Canvas or on the web)

Course Description and Objectives

The EESC 110-120 course sequence provides a broad introduction to the study of environmental science. It explores how humans and other organisms interact with one another and with their physical surroundings and how these interactions impact the world. The course EESC 110 focused on ecological concepts in the biosphere and lithosphere and environmental issues arising from human manipulation of the biosphere. The EESC 120 course builds on that knowledge to examine the biosphere's connection with the hydrosphere and atmosphere.

By the end of this course you should be able to more completely

- ✓ Understand the concepts fundamental to the field of environmental science;
- ✓ Describe how ecosystems function and respond to changes in various biological, chemical, and geological processes as well as human intervention;
- ✓ Analyze current and controversial environmental issues;
- ✓ Demonstrate enhanced critical thinking skills regarding environmental sustainability.

Student Learning Outcomes for the Natural Science General Education Requirement

This course is part of the course sequence for fulfilling the natural science general education requirement. By the end of this course you should have built the foundation to be able to

- ✓ Describe the scientific methods that lead to scientific knowledge;

- ✓ Report and display data collected, interpret experimental observations, and construct explanatory scientific hypotheses;
- ✓ Use theories and models as unifying principles to help understand the natural world;
- ✓ Identify current issues in which scientific progress may challenge traditional social ideas or present moral or ethical dilemmas.

General Policies

1. **Course Setup and Philosophy.** In the classroom, this is a lecture-based course with some group and interactive exercises and video/multimedia presentations. The laboratory component is essential for applying environmental science concepts and will mostly- but may not always- be in sync with the lecture component. The need for citizens to understand environmental science concepts is crucial in today's world. With your earnest effort and attendance over the semester, you will be able to get a good grade in this course as well as gain a solid environmental science knowledge foundation.
2. **Preparation and Participation.** Class preparation and participation are so important that they make up a part of the grade in this course for both the laboratory and classroom sections. Please come to class and lab with the assigned readings completed, prepared to discuss, ask questions, and otherwise contribute to the exchange of ideas and information. You will be part of a small class group with some group participation grades. Your group is an irreplaceable important part of your success in this class, so be an engaged group member. You are responsible for whatever is discussed or occurs in the classroom even if you are absent. Do not email your professor about what you missed; instead, email your group. Attendance in class is very important, both to your grade and to achieve a solid knowledge foundation, but it is not required. Except in extremely rare cases, in-class points cannot be made up. Attendance to lab is mandatory; missing more than two lab classes will result in a failing grade. If there are extenuating circumstances, please contact me beforehand, or afterwards if there is an emergency.
3. **Exams.** There will be three in-class exams to determine your progress in understanding environmental science concepts. Expect multiple choice, short answer, and essay questions. There will also be a cumulative final exam during the assigned final exam period. The exam dates will not change.

4. **Quizzes.** The Mastering Environmental Science website is a valuable study resource. See Canvas for a guide to getting started. There will also be several quizzes offered online for credit during the semester through this website to help you assess your learning and prepare for the exams. Most quizzes will receive no credit if submitted late; the longer review quizzes can be submitted late only up until their respective exams with a -20% penalty.
5. **Mini-Assignments.** Periodically an assignment will be announced in class, involving a reading, survey, or other take-home analysis. Sometimes worksheets or case study analyses will be completed in class, either alone or with your group. Individual members of a group may receive different amounts of points based on participation, communication, and engagement. These various assignments (along with participation) add up to constitute 10% of the grade. Except in extreme cases, in-class points cannot be made up, but be sure to ask for a copy of any missed worksheets. Late take-home assignments are -10% (starting at 11:01am) up to six days late, then -20% up to two weeks late. No credit after that. No late assignments will be accepted after the last day of our class without prior approval.
6. **Laboratory Assignments.** Because of the nature of some of the lab activities, you may have to complete some tasks outside of the regular lab period, but most work will occur during the lab. Some outdoor, on-campus field activities will be required. Dress appropriately for the weather and field conditions- environmental scientists go to the field no matter the weather. Pre-lab assignments are due at the start of lab; no late points will be awarded for lab assignments, but even late completion will help your understanding. Unless announced otherwise, all lab reports along with carbon copies from your lab notebook are due one week after they are assigned, at the beginning of the next lab session. NO lab assignments will be accepted late. If there are extenuating circumstances and you must turn in a lab assignment late, discuss it with me in advance.
7. **Presentation of Lab Reports.** Your work must be legible, with proper spelling, punctuation, and sentence structure. Use liberal spacing so your work and answers are easy to read, or -1 point. Drawings, graphs, and tables must be neat, clearly labeled (including units and axes), and easily understandable or -1 point.
8. **Open Door Policy.** You can discuss in person or e-mail any question or concern you have regarding this course without worrying about it affecting your grade. I cannot promise instant e-

mail replies, but I will get back to you within 48 hours. Do not email questions without checking this syllabus and Canvas first. Come by my office during office hours, schedule an appointment through Starfish, or email me to set up an appointment to fit your schedule and we can discuss concepts, assignments, drafts, or other concerns.

9. **Common Courtesy.** Please do not be late for class. Please turn off and conceal cell phones; a ringing phone, texting, or instant messaging will lose you and possibly your group 10 points. No laptops should be used during class; they form a barrier between you and others and are often a distraction to the rest of the class. Do not sleep in class; if you are that tired, you should be at home. Professors can see what's going on even if we don't call you out! Finally, respect each other and other opinions while being an engaged, concerned member of your group and our class.
10. **Grading.** Some grades will be available on Canvas, but it is important that you keep a record of all your grades and assignments.

Classroom Grading

In-class Exams (18% and 100 points each)	54%
Final Exam	25%
Mastering Environmental Quizzes	10%
Mini-Assignments and Participation	11%

Laboratory Grading

Participation in and preparation for lab and activities	50%
Lab notebook and reports	50%

Final Grade

Classroom grade	75%
<u>Lab grade</u>	<u>25%</u>
Total	100%

Mid-semester grades of less than 70% will be reported as unsatisfactory.

Final letter grades will be assigned based on these limits:

A: >93%	B+: >87%	C+: >77%	
A-: >90%	B: >83%	C: >73%	D: >60%
	B-: >80%	C-: >70%	F: <60%

11. **Disability Accommodations.** The Office of Disability Resources has been designated by the University as the primary office to guide, counsel, and assist students with disabilities. If you already have an accommodations letter from the ODR for this class, make an appointment with me as soon as possible to discuss your approved accommodation needs. If you need accommodations and have not yet contacted the Office of Disability Resources, their phone number is 540-654-1266.

12. Honor Policy

UMW HONOR SYSTEM: The Honor System is fundamentally a code of personal integrity. It means that students of the University of Mary Washington accept the challenge to make their word of honor a pledge of absolute truthfulness in all matters that fall within the Honor Code. It is a commitment to a way of life characterized by loyalty to the highest ideals of individual and collective ethical responsibility.

Cheating and attempted cheating, plagiarism, lying, and stealing of academic work and related materials constitute Honor System violations. It is your responsibility to understand the Honor Policy and ask your professor for further explanation of any part you do not understand. It is important to understand the issue of plagiarism and how to avoid it. Plagiarism means using ideas, opinions, factual information, or language from someone without giving that person appropriate credit. Plagiarism is intellectual robbery. Student writers are sometimes confused as to what should be cited. In addition to direct quotations, paraphrases and summaries of factual information not formerly known to the writer must also be cited.

It is very important to understand how to prevent committing plagiarism when using material from a source, any source. If you wish to quote verbatim, you must use the exact words and punctuation of the original and you must include quotation marks in your citation. If you want to paraphrase ideas from a source, you must do a thorough job of putting the ideas into your own language and you must still cite the source. ALWAYS. Citing sources makes your work stronger. If you ever have any questions, don't hesitate to ask your professor.

Let's have a fun, educational semester!

EESC 120 Introduction to Environmental Science II Schedule

Dr. Melanie Szulczewski

This schedule is subject to changes and additions as announced in class and/or on Canvas.

Class Date	Topics	Readings/ What's Due
Week 1	Course Overview Review of Ecological Concepts	Wright: Review Section II Chapters
Week 2	Our Atmosphere The Ozone Layer	Wright: Chapter (sections) 18.1 and 19.5 Thurs: Mastering ES Quiz #1 Due
Week 3	Global Warming & Climate Change I	Wright: Chapter 18 Thurs: Mastering ES Quiz #2 Due
Week 4	Global Warming & Climate Change II	Canvas: Assigned Reading Thurs: Mastering ES Quiz #3 (Review) Due
Week 5	Tuesday: Exam 1 Air Pollution I	Wright: Chapter 19
Week 6	Air Pollution II Thursday: The Hydrologic Cycle	Wright: Chapter 10 (for Thurs) Thurs: Mastering ES Quiz #4 Due
Week 7	Water Use and Pollution	Wright: Chapter 20 Thurs: Mastering ES Quiz #5 Due
Week 8	Spring Break	
Week 9	Solid Waste and Recycling Thursday: Exam 2	Wright: Chapter 21 Tues: Mastering ES Quiz #6 (Review) Due
Week 10	Energy and Fossil Fuels	Wright: Chapter 14
Week 11	Nuclear Energy Renewable Energy I	Wright: Chapter 15 and 16 Tues: Mastering ES Quiz #7 Due
Week 12	Renewable Energy II	Wright: Chapter 16 (cont) Canvas: Assigned Reading Thurs: Mastering ES Quiz #8 (Review) Due
Week 13	Tuesday: Exam 3 Human Population	Wright: Chapter 8
Week 14	Population Impacts	Wright: Chapter 9 and 23
Week 15	Humans and Sustainability Course Conclusions and Review	Wright: Chapter 23.3 and 23.4 Thurs: Mastering ES Quiz #9 Due
Finals Week	EESC 120 Final	Cumulative Final Exam will be held during the assigned time during Finals Week

**EESC 120 Introduction to Environmental Science II
Laboratory Schedule**

This schedule is subject to changes and additions as announced in class and/or on Canvas.

Class Date	Topics	What's Due
Week 1	Introduction during class No lab.	
Week 2	Safety Issues The Ozone Hole	Safety Quiz
Week 3	Global Warming	Lab Report
Week 4	Climate Change Modeling	Lab Report
Week 5	Acid Rain Study	Lab Report
Week 6	Water Use and Abuse	Lab Report
Week 7	Eutrophication Study	Lab Report
Week 8	Spring Break	
Week 9	Garbage Survey	Lab Report
Week 10	Nonrenewable Energy Analysis	Lab Report
Week 11	Renewable Energy Study	Lab Report
Week 12	Solar Energy Experiment	Lab Report
Week 13	Population Growth Modeling	Lab Report
Week 14	Sustainability Challenges	Lab Report
Week 15	No lab.	Lab Report