

Course Change Request

New Course Proposal

Date Submitted: 11/07/17 12:33 pm

Viewing: **EVPP 113 : Ecosphere: Introduction to Environmental Science II-Lab**

Last edit: 11/07/17 12:33 pm

Changes proposed by: ykih

Are you completing this form on someone else's behalf?

In Workflow

1. **ESP Chair**
2. **SC Curriculum Committee**
3. SC Associate Dean
4. Assoc Provost-Undergraduate
5. Registrar-Courses
6. Banner

Approval Path

1. 10/31/17 10:11 pm
A. Alonso Aguirre (aaguirr3):
Approved for ESP Chair
2. 11/06/17 12:50 pm
Jennifer Bazaz Gettys (jbazaz):
Rollback to Initiator
3. 11/07/17 12:55 pm
A. Alonso Aguirre (aaguirr3):
Approved for ESP Chair

Yes

Requestor:

Name	Extension	Email
Kim Largen	3-1048	klargen@gmu.edu

Effective Term: Spring 2018

Subject Code: EVPP - Environmental Science & Policy

Course Number:
113

Bundled Courses:

Equivalent Courses: EVPP 111 - The Ecosphere: An Introduction to Environmental Science II

Catalog Title: Ecosphere: Introduction to Environmental Science II–Lab

Banner Title: Intro Env Sci II-Lab

Will section titles vary by semester? No

Credits: 1

Schedule Type: Laboratory

Hours of Lab or Studio per week: 3

Repeatable: May only be taken once for credit (NR)

Default Grade Mode: Undergraduate Regular

Recommended Prerequisite(s):

Recommended Corequisite(s):

Required Prerequisite(s) / Corequisite(s) (Updates only):

EVPP 112: Environmental Science II – Lecture, Minimum grade of C, Concurrent enrollment permitted.

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(Course/Test Code	Min Grade/Score	Academic Level)	Concurrency?	

Registration Restrictions (Updates only):

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

School(s):

Catalog

Description:

Studies components and interactions that make up natural systems of our home planet. Teaches basic concepts in biological, chemical, physical, and Earth sciences in a hands-on laboratory format, focusing on major environmental issues from a scientific perspective.

Justification:

Decoupling of the lecture and lab portions of an existing 4 credit hour lab science course to create a stand-alone 1 credit hour version of the lab portion of the course.

Does this course cover material which crosses into another department? No

Learning Outcomes:

- Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding:
 - ☐ evolves based on new evidence.
 - ☐ differs from personal and cultural belief.
- Recognize the scope and limits of science.
- Recognize and articulate the relationship between the natural sciences and society and the application of science to societal challenges (e.g., health, conservation, sustainability, energy, natural disasters, etc.).
- Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).
- Participate in scientific inquiry and communicate the elements of the process, including:
 - ☐ making careful and systematic observations.
 - ☐ developing and testing a hypothesis.
 - ☐ analyzing evidence.
 - ☐ interpreting results.

Attach Syllabus

[EVPP 113-Syllabus Final.pdf](#)

Additional Attachments

Staffing:

It is proposed that this lab course will be taught by Graduate Teaching Assistants under the direction of the EVPP 110/111 Course Coordinator which is the same way that the coupled lab is currently taught.

Relationship to Existing Programs:

The relationship of the new lab course to existing programs will be the same as when the lab was coupled

to the lecture portion of the course.

Relationship to**Existing Courses:**

Originally, the content of this proposed new lab course was coupled to the lecture portion of the course (EVPP 112). The content of this proposed new course will be the same as the lab portion of the course (EVPP 111) when it was coupled to the lecture, it will just be offered as a stand-alone course.

Additional**Comments:**

A student under an old catalog term will have the 4 credit course fulfilled by the proposed lecture (EVPP 112) and this lab pairing.

Reviewer**Comments**

Jennifer Bazaz Gettys (jbazaz) (11/06/17 12:50 pm): Rollback: Hi Dr. Kim, I would suggest making EVPP 113 equivalent to EVPP 111. This way, students from older catalogs who have taken the lecture and lab will automatically have EVPP 111 fulfilled (we know they would have taken the lecture because it's a required prereq for EVPP 113). Also, please update the syllabus so it doesn't include reference EVPP 111 (same with EVPP 112). Thank you!

Key: 15672

EVPP 113- Ecosphere: Environmental Science II - Lab - Spring 2018

I. Instructor Contact Information

A. Lab Instructor Contact Information

There are multiple instructors teaching the various sections of EVPP 113 lab but each section has only one instructor. All EVPP 113 lab sections are governed by this syllabus, regardless of the instructor. All instructor mailboxes are located in DK 3038. Lab information is included on the single Blackboard page that will serve all lab sections of the course. Each lab instructor will provide to students on the first day of class their contact information, office hours and office location, which you should record. This information will also be available on the lab portion of the course Blackboard page. It is the student's responsibility to know his/her lab instructor's name and contact information.

B. Course Coordinator Contact Information

All EVPP 113 lab sections are coordinated by, and all EVPP 113 lab instructors report to, the EVPP 110/112 course coordinator, whose contact information follows:

Course Coordinator: Dr. Kim Largen

Office: DK 3027

Phone: 703-993-1048

Mailbox: DK 3005

Email: klargen@gmu.edu

Office Hours: MWF 7:30am-8:15am and MWF 10:30am-11:15pm in DK 3027, or by appointment

II. University-level Course Information

A. Course Administrative Details

Title: "The Ecosphere - Introduction to Environmental Science II - Lab"

Number: EVPP 113

Section: This syllabus applies to all EVPP 113 lab sections for the spring 2018 semester.

Credits: 1 credit-hours.

Meeting Days and Times: These are specific to each lab section, refer to patriotweb.

Location: All EVPP 113 lab sections meet in DK 3031.

Blackboard: One Blackboard page will serve all lab sections of the course.

B. Course Prerequisites

There are no prerequisites for this course.

C. Course Description

Studies components and interactions that make up natural systems of our home planet. Teaches basic concepts in biological, chemical, physical, and earth sciences in a laboratory format.

D. Course Goals

EVPP 113 is the lab component of EVPP 112 which is one of courses in the two-semester, Mason Core natural science sequence (EVPP 110 & EVPP 112). This is an environmental science course, not an environmental studies course. The course will teach basic concepts in biological, chemical, physical, and earth sciences in a laboratory format.

The Mason Core natural sciences courses engage students in scientific exploration; foster their curiosity; enhance their enthusiasm for science; and enable them to apply scientific knowledge and reasoning to personal, professional and public decision-making.

To achieve these goals, students will:

- Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding:
 - evolves based on new evidence.
 - differs from personal and cultural belief.
- Recognize the scope and limits of science.
- Recognize and articulate the relationship between the natural sciences and society and the application of science to societal challenges (e.g., health, conservation, sustainability, energy, natural disasters, etc.).
- Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).
- Participate in scientific inquiry and communicate the elements of the process, including:
 - making careful and systematic observations.
 - developing and testing a hypothesis.
 - analyzing evidence.
 - interpreting results.

E. Mason Core Learning Objectives Fulfilled by the Course

EVPP 113 satisfies the laboratory component of the Mason Core natural science requirements for non-science majors.

III. Course Materials

A. Required

The following text is required for the lab portion of this course:

- *Environmental Science Lab Manual and Notebook - Volume 2: The Issues, 2nd Edition, Revised Printing*, (ISBN: 9780757598067), by Kim Largen, published by Kendall Hunt.

B. Recommended

A lab apron is recommended for this course.

IV. Course Structure

A. Background on the Nature of the Lab Experience

It is important that students understand up front that the nature of the lab experience in environmental science is probably quite different from lab experiences they may have had in high school or in other college science courses such as biology or physics. The environmental science lab experience is inherently **messy**, both physically and mentally!

The physical "messiness" derives from the fact that many lab activities involve going into the field, either on campus or off, where students are exposed to nature (variations in weather, insects, poison ivy, possibly snakes, plants, dirt, mud, streams, ponds, etc.). Students can expect to get wet and dirty during these field experiences. Often, samples of materials (soil, water, insects, leaves, etc.) collected in the field are brought back into the lab for observation, experimentation and/or manipulation, again **resulting in students getting dirty**.

Several lab activities may be conducted in the field off campus. This is also known as a field trip! On lab days during which a field trip occurs, students meet at the lab classroom, walk as a group to the vehicles that provide transportation, travel to the location of the field trip and conduct the activities, travel back to campus, and walk back to the lab for the remaining activities that must be carried out. There may be two to three off-campus field trips.

The mental "messiness" derives from the fact that the environment is a huge, complex system with processes that normally occur over large periods of time, neither of which characteristic is conducive to simple lab exercises that can be started and completed during a single lab class period. As a result, some parts of an exercise may require action in the lab during a single week, two weeks in a row, one week and then not again for several weeks, or one week and then not again for a couple of months. **This means that there will ALWAYS be many activities from several different lab exercises going on during any given week in lab class!!!** Students must be capable of and willing to **multi-task** in order to derive the desired benefit from the lab exercises.

Please consider the preceding three paragraphs carefully and immediately!! If you are not capable of, or not willing to engage in, multi-tasking, don't like getting dirty, don't like going outside, and don't like taking off-campus field trips, then EVPP 113 might not be the best general education science class for you to take and you might want to consider one of the other courses such as biology, astronomy or geology to meet your general education science needs.

B. Lab Class Format

1. Reflective Discussion and Pre-lab Lecture

Each lab class will begin with a brief **reflective discussion** of the previous week's lab activities.

Following the reflective discussion, your lab instructor will present a **pre-lab lecture**. During this lecture the lab instructor will 1) present content to provide a basic understanding of the concepts related to the day's activities, 2) address any questions about the pre-lab quiz, and 3) review the procedures to be carried out that day.

The answers to the pre-lab quizzes are available to students after the due date for the pre-lab quizzes passes. Instructors will not go over the pre-lab quiz in lab class but students are welcome to ask questions about the pre-lab quiz at the beginning of lab class.

The lab instructor will also do a "talk through/demo" of the procedures to be carried out that day and will point out any corrections or changes to the procedures and any changes in equipment or materials.

Due to the importance of the reflective discussion and pre-lab lecture, students must arrive to lab on time and pay attention to the pre-lab lecture. Students are not to use their personal laptop computers, or any other personal electronic device during the pre-lab lecture for any purpose unless directed to do so by their lab instructor.

2. Execution of Lab Exercises

Following the pre-lab lecture, students will work in groups to set-up, monitor, and/or complete activities from one or more lab exercises. A lab exercise consists of a group of activities related to one or more environmental science topics or concepts. By carrying out these exercises, students obtain experience with the use of materials, techniques, and equipment related to the pursuit of environmental science as well as exposure to the scientific method and the benefits and challenges associated with its use. The lab exercises are found in the lab manual.

C. Lab Class Period

Lab periods are 2 hours 40 minutes long. Students should be prepared to spend the **entire** period in lab class!

D. Lab Schedule

The tentative lab schedule can be found at the end of this syllabus (section VIII). This schedule indicates the lab exercises/activities that are planned to be conducted each week. It is important to refer to this schedule to find out what lab exercises/activities you need to read to prepare for each week's pre-lab quiz and lab activities. The schedule also indicates whether the lab activities will be conducted inside and/or outside so that you can dress accordingly. **Changes to the schedule will be posted on the course Blackboard (<http://mymason.gmu.edu>). IT IS THE STUDENT'S RESPONSIBILITY TO CHECK BLACKBOARD REGULARLY TO KEEP ABREAST OF THE LAB SCHEDULE.**

V. Grading and Coursework

A. Course Workload

A general rule of thumb for the amount of time that will be required outside of class time for a course is 1 to 3 hours per credit hour (1 hour/credit hour for "easy" courses, 3 hours/credit hour for "difficult" course). Whether or not this course is "easy", "moderate" or "difficult" depends on each student's background, interest, aptitude, study skills, etc. Depending on where you fall within that spectrum, you should expect to spend between 1 and 3 hours each week on this lab course outside of the time you spend in lab class.

B. Lab Work and Grade Components

The lab grade will be based on the weekly data sheet grades, the weekly write up grades, pre-lab quizzes, and the formal lab report with peer-review. Explanations of each of these components can be found in the sections of that follow. The table below summarizes what portion of the lab grade will be determined by each of the components of the lab work.

1. Weekly Data Sheets (77 of the 300 possible points, or 25.67%)

At the end of each lab class, students will submit to their lab instructor the duplicates (yellow copies) of the data sheets that they prepare that day. Each "weekly data sheets" grade will count equally toward the points for this component of the lab grade. This component of the lab grade requires no work outside of class. Students who miss a lab, **regardless of the reason for the absence (see "attendance" section)**, will receive a zero for that week's "weekly data sheets" grade. There will be 12 "weekly data sheets" submissions, **each worth 7 points** for a total of 84 points. In calculating the final lab grade, only 77 points will be included. This is basically the same thing as dropping the lowest weekly data sheets grade. Data sheets must be submitted before leaving lab class and **late data sheets will NOT be accepted**.

Data sheets are graded based on thorough completion. Points will be deducted for empty cells, lack of indicated labels, or absence of indicated answers or observations. Student can access the weekly data sheets grading rubric (posted on Blackboard each week) to see what value toward the point total will be attributed to each part of the weekly data sheets.

Students are expected to participate fully in lab class. Full participation includes paying attention to the lab instructor during the pre-lab lecture at the beginning of lab, sharing equally with your group mates the work of conducting the lab activities, participating in class discussions, arriving on time, contributing to lab cleanup, not using any electronic devices during lab unless they are part of the lab activity, and not engaging in any disruptive or inattentive behavior at any time during lab class. Lab instructors will assess class participation through direct observation of, and interaction with, students.

Failure to participate fully, as described above, will result in penalties in the form of deductions from the "weekly data sheets" grade, as detailed in the next section.

a. Deductions from Weekly Data Sheets Grade

Lab Work Grade Component	# Points Toward Lab Grade	% of Lab Grade
Weekly data sheets (12@7 = 84 possible, 77 counted)	77	25.67%
Weekly write ups (11@8 = 88 possible, 80 counted)	80	26.67%
Weekly pre-lab quizzes (11@5 = 55 possible, 50 counted)	50	16.67%
Lab Syllabus and Safety Quiz	11.75	3.91%
Scientific Paper Tutorial On-Line Assignment	12	4.00%
Formal lab report	57.25	19.08%
Formal lab report peer-review process	12	4.00%
Total	300	100%

i. Punctuality

It is extremely important to arrive to each lab class on time! Important information is provided at the beginning of lab class. **Failure to be present at the beginning of class 1) renders the tardy student unprepared to carry out the lab, 2) is disruptive and unfair to the remainder of the class and to the lab instructor, and 3) renders the student ineligible for the perfect attendance bonus.** Therefore, **tardiness will not be tolerated and will be penalized, regardless of the validity of the reason for the tardiness.**

- ★ Students arriving up to 30 minutes late to lab will be penalized **1% of that week's "weekly data sheets" grade for each minute the student is late.**
- ★ Students arriving more than 30 minutes late **will not be permitted to participate in the lab** that day and will receive a **ZERO** for that week's "weekly data sheets" grade, will not be permitted to complete that week's weekly write up, and the absence **will** count toward the maximum of three missed labs prior to receiving a zero for the lab portion of the course grade.

ii. Behavior and Participation

When the lab instructor is presenting information to the entire class, whether during the pre-lab lecture or at any other time during the lab class, students are **expected to pay attention and remain quiet.** Inattentive behavior includes, but is not limited to, 1) reading non-lab related materials, 2) working on any assignment from any class, 3) sleeping or resting, 4) using the lab desktop computer or personal laptop computer, 5) using a cell phone, 6) using devices with earphones, 7) using any other electronic device for any reason during the pre-lab lecture, or 8) talking with a classmate.

When the group is conducting the actual lab activities, students are expected to be fully **participating** in all aspects of that work. Incomplete participation includes, but is not limited to, 1) reading non-lab related materials, 2) working on any assignment from any class other than the lab activity currently underway, 3) sleeping or resting, 4) using the lab desktop computer or personal laptop computer for a non-lab activity related purpose, 5) using a cell phone for

a non-lab activity related purpose, 6) using devices with earphones, 7) using any other electronic device for a non-lab activity related purpose, 8) talking with a classmate without participating in the lab activity, 9) leaving the lab classroom for extended periods of time, 10) not conducting a fair share of the work involved in completing the lab activity, or 11) engaging in any behavior deemed to be distracting, disruptive or unsafe.

- **Inattentive, non-participatory, noisy, distracting, and/or disruptive behavior** by students will be **penalized at the rate of 10% of the weekly data sheets grade.**
- Students who fail to heed the requests of the instructor to cease the inattentive, non-participatory, noisy, distracting, and/or disruptive will 1) be asked to leave the lab class, with the support of campus police if necessary, 2) not be permitted to complete the lab activities for that day, 3) receive a **ZERO** on the weekly data sheets grade for that day, 4) not be permitted to complete the lab write up for that week, and 5) will be considered to have been absent on that day and that absence **will** count toward the maximum of three missed labs prior to receiving a zero for the lab portion of the course grade.

iii. Lab Clean Up

Each student is responsible for cleaning up after themselves whenever they carry out any activity at any place in the lab room. This clean up responsibility is basically an extension of full participation but is addressed separately to emphasize its importance.

The members of each lab group are collectively responsible for ensuring that they leave their lab table clean, neat and stocked with all non-consumable materials present at their table upon their arrival on any given day. The lab instructor may choose to control the departure of students as they complete the day's lab activities by requiring that each lab group be "checked out" by the lab instructor or assistant prior to their departure.

- Regardless of the method employed, the lab instructor will check each lab table at the end of each lab class and if the instructor finds that a group has left their table dirty, sloppy, or without the required materials, **all the members of that group will be penalized 10% of the weekly data sheets grade per occurrence.**

iv. Safety Violations

Students are required to abide by all "Lab Safety Rules and Practices" detailed in the lab manual. Students are further expected to abstain from any action or behavior that creates unsafe conditions in the lab for themselves, their classmates, or the instructor, regardless of whether or not the specific situation is identified in the "Lab Safety Rules and Practices."

Failing to abide by the safety rules and practices and/or contributing to unsafe laboratory conditions in any manner **will be penalized**, as follows:

- **Students who violate** anything identified in the **"Lab Safety Rules and Practices"** will be **penalized** at the rate of **25% of the weekly data sheets grade for the first violation**.
- Students who commit two or more violations of anything identified in the **"Lab Safety Rules and Practices"** **AND/OR** who engage in any behavior deemed by the instructor to present an unacceptable and immediate safety threat may 1) be asked to leave the lab class, with the support of campus police if necessary, 2) not be permitted to complete the lab activities for that day, 3) receive a **ZERO** on the weekly data sheets grade for that day, 4) not be permitted to complete the lab write up for that week, and 5) be considered to have been absent on that day and that absence **will** count toward the maximum of three missed labs prior to receiving a zero for the lab portion of the course grade.

2. **Weekly Write Ups** (80 of the 300 possible points, or 26.67%)

Most of the activities in the lab manual have at their end a "discussion and conclusions" section that contains a number of questions pertaining to the lab activity. At the beginning of each lab class, students will submit the completed "discussion and conclusions" pages from all the lab activities conducted during the previous week's lab class and this will constitute the "weekly write up". There will be 11 weekly write up grades, **each worth 8 points** for a total of 88 points. In calculating the final lab grade, only 80 points will be included. This is basically the same thing as dropping the lowest weekly write up grade.

This component of the lab grade requires an estimated 1.5 hours of work outside of class each week.

Weekly write ups are due at the beginning of lab class the week after the activities were conducted. Students arriving late to lab class will be permitted to submit the weekly write up due that day, as long as it is submitted immediately upon their arrival.

If a student misses a lab class and is, therefore, not present to submit the previous week's weekly write up, the student may submit the weekly write up electronically via email to the instructor **no later than the beginning of lab class**. The electronic submission can be in the form of scanned images or photos of the completed pages. **Late weekly write ups** (those submitted after the beginning of lab class or after a late student's initial arrival time) **will NOT be accepted**.

Students who miss a lab, **regardless of the reason for the absence (see "attendance" section)**, will receive a zero for that week's "weekly data sheets" grade.

The weekly write up is graded based on thorough completion and on accuracy when there is a specific correct answer for a question. Some questions have multiple parts and points will be deducted when all parts of the question are not answered. There are usually questions pertaining to the hypotheses. For these questions, the first part of the question asks whether the data supported or did not support the hypothesis. You must answer this part of the question and your answer **MUST USE THE TERMS "SUPPORTED" OR "NOT SUPPORTED" (OR "DID NOT SUPPORT")** in your data. You

will **NOT RECEIVE CREDIT** if you substitute the terms **TRUE or FALSE**, or the terms **ACCEPTED or REJECTED (NOT ACCEPTED)**.

The second part of the hypothesis questions asks you to explain why you stated that the data supported or did not support the hypothesis. For this part of the question, your answer **MUST REFERENCE SPECIFIC DATA**. For example, it is not acceptable to state "The hypothesis was supported by the data because that is what our data showed." You would instead say something like "The hypothesis was supported by the data which showed that men's average weight of 175 pounds was greater than women's average weight of 125 pounds."

Students can access the weekly write up grading rubric (posted on Blackboard each week) to see what value toward the point total will be attributed to each part of the weekly write up.

3. Weekly Pre-Lab Quizzes (50 of the 300 possible points, or 16.67%)

Each week, students must complete a weekly pre-lab quiz, which is posted on the course Blackboard page. **It is the student's responsibility to figure out how to use the Blackboard "quiz" function (called an "assessment") in a timely manner, as there will be no "do-overs" after the due date for the quiz has passed.**

The weekly pre-lab quiz contains questions about the upcoming week's lab activities. The purpose of the weekly pre-lab quiz is to hold students accountable for reading the upcoming week's lab activities before coming to lab class. The weekly pre-lab quizzes are open lab manual but students are expected to do their own work. Copying each other's answers is considered cheating.

Weekly pre-lab quizzes are graded on accuracy. **The weekly pre-lab quizzes are due by 11:59pm each Sunday FOR ALL LAB SECTIONS.** Students will be able to see the answers their score on the quiz immediately after they submit it but they will not be able to see the correct e correct answers after the due date passes each week.

There will be 11 weekly lab quizzes, **each worth 5 points** for a total of 55 points. In calculating the final lab grade, only 50 points will be included. This is basically the same thing as dropping the lowest weekly pre-lab quiz grade.

The weekly pre-lab quiz component of the weekly lab grade requires an estimated 1.5 hours of work outside of class each week (for reading the activities and taking the quiz).

Late submission will not be allowed for this component and students who do not complete the weekly pre-lab quiz by 11:59pm each Sunday will receive a zero for that quiz, no exceptions.

Students will receive credit for timely completion of weekly lab quizzes, even if they end up missing the lab to which the pre-lab questions pertain.

4. Lab Syllabus and Safety Quiz (11.75 of the 300 possible points, or 3.91%)

Students will complete a "lab syllabus and safety quiz" which will be **due by 11:59pm on Sunday, 2/4/18**. This quiz is separate from the weekly pre-lab quizzes and the grade received on it cannot be dropped. The purpose of this quiz is to ensure that students 1) have read the lab syllabus and understand its provisions and 2) have read

the "Lab Safety Rules and Practices" portion of the lab manual and understand those rules and practices. Students may refer to the lab syllabus and the "Lab Safety Rules and Practices" as they answer the questions on this quiz.

5. Scientific Paper Tutorial - On-Line Assignment (12 points out of the lab total of 300 points, or 4%)

Students will complete an assignment titled "Scientific Method Tutorial On-Line Assignment". This assignment is posted in the lab portion of the course Blackboard page. The purpose of this assignment is to introduce students to the content and format of a scientific paper in preparation of the assignment of writing a formal lab report in the format of a scientific paper. The assignment is worth 12 points and the grading is based on accuracy. **This assignment is due by 11:59pm on Sunday, 2/25/18. This assignment will not be accepted late.**

6. Formal Lab Report With Peer-Review (57.25 points for the report out of the lab total of 300 points, or 19.08%, and 12 points for the peer-review process out of the 300 points possible, or 4%)

Students will complete one formal lab report, based on the following two activities:

- ***"Water Quality - Activity 8 - Pollutants - Inoculating Algal Cultures"***
- ***"Water Quality - Activity 9 - Pollutants - Effects on Algal Growth"***

The first activity constitutes the set up of this experiment and the second activity constitutes its completion, which will occur in your lab class the week of 2/26/18-3/2/18.

The goal of this assignment is to introduce students to the style of writing used to present the process and results of scientific experimentation. Students will be prepared for the task by 1) reading the lab activities in the lab manual which are structured in a similar manner to the structure of scientific papers, 2) completing the "scientific paper tutorial on-line assignment", 3) listening to the lab instructor's explanation of expected content and format of the formal lab report and the grading rubric for the assignment, 4) reading the "Writing a Lab Report" section of the lab manual, 5) reading the grading rubric for this task (will be available on Blackboard), and 6) participating in the peer-review process of evaluating the formal lab report.

Data and observations will be made by the lab group during the execution of the assigned lab activity, but **the formal lab report must be the independent work of each student.** Students will be required to submit an electronic copy of their report. Software exists that enables instructors to easily compare written work and check for plagiarism. Students are not to copy each other's graphs, figures, illustrations or any written portion of the formal lab report. **Students who engage in this activity will be considered to be in violation of the Honor Code and will be subject to its process and consequences.**

Students who are repeating this course may incorporate portions of their previous lab report into the current lab report provided that the new data is utilized and all sections are adjusted accordingly. A student who chooses to utilize this approach must keep in mind that plagiarism checking software will be able to compare the current

report to reports submitted in the past. In other words, if a student copied portions of their previously submitted report, it will be detected on the currently submitted report and will still be considered a violation of the Honor Code. The minimum sanction recommended for a violation of the Honor Code will be a zero on the assignment.

The first version of the formal lab report will be graded via a **peer-review process** conducted during your lab class the week of 3/26/18-3/30/18. **Student must print out and bring to their lab class the week of 3/26/18-3/30/18 TWO hard copies of their formal lab report.** If students arrive at lab class without the hard copies of their lab report they will be permitted to go to an appropriate location on campus to retrieve or print the hard copies but they will be assessed the normal penalties for being tardy to lab class. During lab class, each student will grade the formal lab reports of two of their classmates using the grading rubric. This means the each student will have their formal lab report graded by two of their classmates. The purpose of the peer-review process is to 1) provide an incentive for students to scrutinize, evaluate and understand the formal lab report grading rubric prior to their lab instructors using the grading rubric to grade the formal lab report, 2) give students the opportunity to learn from seeing examples of formal lab reports of different qualities, and 3) give students the opportunity to improve their formal lab report based on input from their peers prior to it being submitted for grading by the lab instructor.

The grades that students receive on their formal lab report from their peers WILL NOT COUNT TOWARD THEIR FINAL GRADE ON THE FORMAL LAB REPORT! HOWEVER, THE PEER REVIEW PROCESS WILL BE THE ONLY OPPORTUNITY STUDENTS WILL HAVE TO RECEIVE FEEDBACK ON THE REPORT PRIOR TO IT BEING SUBMITTED FOR GRADING. The purpose of the grades received from one's peers is to give students a sense of the grade they might receive from the lab instructor grading the lab report with the same grading rubric used by the peers. **Participating in the peer-review process will be worth 12 points of the 300 possible lab points, or 4%.** Full credit for the peer-review process will be given for a student who is present on the day of peer-review, brings two hard-copies of their formal lab report, and reviews and grades (using the grading rubric) the formal lab reports of two peers in a thoughtful, thorough, conscientious manner. Fully-participating students will leave their lab class the week of 3/26/18-3/30/18 with two peer-graded copies of their formal lab report.

The peer-review process MAY contribute to a study being conducted in support of undergraduate and graduate researchers to investigate improved instructional strategies. The goal of this research is to help you and your classmates learn better. IF the GMU Human Subjects Review Board approves a pending research proposal you will receive 3 points (1%) extra credit for participating in a survey about your experience with the peer-review process. The information from the survey will be used by the researchers.

Students will have two weeks to revise their formal lab report, incorporating as appropriate the comments received and corrections suggested in the peer-review process. Students must **submit to the folder for lab section an electronic copy of the formal lab report, in the form of a .doc or .docx document, to the lab portion**

of the course Blackboard page by the **beginning of their lab class during the week of 4/9/18-4/13/18.** **NO LATE SUBMISSIONS OF THE FORMAL LAB REPORT WILL BE ACCEPTED.** It is NOT acceptable to email your lab instructor the electronic version of your formal lab report instead of submitting it to the submission folder. It is your responsibility to submit your formal lab report to the submission folder successfully by the due time and date. This means you are responsible for making sure that there are no technical difficulties that will prevent you from submitting your formal lab report in a timely manner. This may mean that you should plan on submitting the formal lab report prior to the due time/date so that if a technical difficulty arises you will have time to resolve it and still submit your formal lab report in on time.

The formal lab report submitted by the beginning of each student's lab class the week of 4/9/18-4/13/18 will be **GRADED EXTREMELY STRICTLY relative to the provided grading rubric!!!!** If students have given due diligence to this assignment, participated fully in the peer-review process, and taken advantage of all resources available to assist in executing this assignment, then their grade should be satisfactory. Lab instructors will be grading the formal lab report based on the grading rubric (which will be posted in Blackboard) available to students since the completion of the formal lab report lab activity and utilized in the peer-review process. It is the student's responsibility to understand the provisions of the grading rubric.

Lab instructors post grades and feedback on the **formal lab report** to Blackboard **by the beginning of each student's lab class during the week of 4/30/18-5/4/18.**

The instructor-graded submission will be graded using the same grading rubric used to grade the original paper during the peer-review process.

The final grade for the **formal lab report will be worth 57.25 of the 300 points for lab, or 19.08% of the lab grade.**

If a student does not participate in the formal lab report peer-review process (or is absent from lab on the day the process is conducted), they will receive a grade of 0 for the peer-review process. They can submit the formal lab report but they will not have the opportunity to receive feedback prior to the submission.

VI. Course Policies

A. Lab Manual Book Check

The lab manual is a required text for this course. Since the lab manual also functions as a "consumable" workbook, used copies of the lab manual are not sufficient and do not meet the requirement for the lab manual. Lab instructors will conduct a lab manual book check at the beginning of the 2nd lab class meeting. **Students who do not have their lab manual by the 2nd lab class will....**

- **not be permitted to participate** in lab classes until they have their lab manual
- **receive zeros for all lab work missed due to their absence(s) AND any absences for this reason WILL count toward the maximum of 3 missed labs** prior to receiving a grade of zero for the lab portion of the course
- **have 3 points deducted from their entire lab grade**

B. Lab Safety Orientation & Rules Acknowledgement Form

EVPP 113 lab is a relatively safe laboratory experience. However, there are always potential risks involved in any lab or field activity. Students are responsible for reading and abiding by the "Lab Safety Rules and Practices" in the lab manual. The general safety guidelines presented in the lab manual and by your lab instructor are designed to alert you to the potential safety hazards associated with, and safe behaviors and practices expected during, EVPP 113 lab class. Instructor's may expel a student from the lab classroom at any time if the instructor believes that the student's actions or behavior presents a safety risk to himself/herself or anyone else in the classroom.

Students will answer questions pertaining to the "Lab Safety Rules and Practices" along with question pertaining to the lab syllabus on the "Lab Syllabus and Safety Quiz".

Students will be required to sign and submit the "Lab Safety Orientation and Safety Rules Acknowledgement Form". This form must be submitted by the beginning of the 2nd lab class meeting. **Students who do not submit this form by the beginning of the 2nd lab class meeting will....**

- **not be permitted to participate in lab classes** until the form is submitted
- **receive zeros for all lab work missed due to their absence(s) AND any absences for this reason WILL count toward the maximum of 3 missed labs** prior to receiving a grade of zero for the lab portion of the course
- **have 3 points deducted from their entire lab grade**

C. Attendance

1. Expectations

Attendance is expected and required at all labs. When a student misses a lab exercise, he/she misses more than just the data that was gathered. The student misses first-hand observations, hands-on experiences, cooperative learning opportunities, the use of equipment, and exposure to challenges of experimental design and data collection techniques. With that in mind, it follows that there is no way to fully "make-up" that learning experience when a lab class is missed, **regardless of the validity of the reason for the absence.** To rephrase: ***Even if the absence is unavoidable, the result of a valid reason, and/or not your fault, being absent will result in a zero for that week's weekly data sheets and weekly write ups.*** Simply obtaining the data from another student and completing the weekly data sheets does not and cannot serve as a substitute.

2. Consequence of Missing a Lab

a. General

Students are expected to make every attempt to fulfill the scheduling commitment they made when they registered for their lab section. Students **absent from lab for ANY REASON will not be permitted to submit the weekly**

data sheets or the weekly write ups or peer review process for the day missed and will receive a **zero** for those grades. Students are responsible for obtaining all information and data from the missed lab class from their group members, not from their lab instructor.

STUDENTS CANNOT MAKE UP A MISSED LAB BY ATTENDING ANOTHER LAB SECTION!!!!

b. Labs Missed Due to Late Registration

Labs missed because a student registered late for the class **will still count as absences and the student will receive zeros for any work** (weekly data sheets, weekly write up, pre-lab quizzes) associated with those missed labs. Labs missed due to adding the course late **WILL** also count toward the maximum of 3 missed labs prior to receiving a grade of zero for the course.

c. Labs Missed Due Participation University Activities or Religious Observances

According to University Academic Policy (AP) 1.6.1, students must provide their instructor **within the first two weeks** of the semester a list of "the dates of major religious holidays on which they will be absent, and the dates for which they are requesting an excused absence for participation in any university-sponsored activity scheduled prior to the start of the semester, and as soon as possible otherwise." Please refer to AP 1.6.1 at <http://catalog.gmu.edu/content.php?catoid=15&navoid=1168#attendance> for additional information.

Students who miss a lab due to a religious observation or participation in a university-sponsored activity **AND** notified their lab instructor two weeks in advance, per AP 1.6.1, **will** be permitted the following "reasonable" opportunities to reduce the impact on their grade of those lab absences:

- ★ Students may obtain the data from the missed lab from a group mate and use it to complete the weekly write up which must be submitted at the beginning of the lab class following the missed lab class (meaning the due date is the same as for students who did not miss the lab and is subject to the submission provisions of this component of the lab course work). Students will therefore receive credit for the weekly write up for a lab missed for religious observance or participation in university-sponsored activities. The due date for the weekly write up will be the same for a student that misses a lab for a religious observance or participation in a university-sponsored event as for students that did not miss the lab.
- ★ Students will receive credit for a weekly lab quiz that they complete even if the quiz pertains to a lab missed for religious observance or participation in university-sponsored activities. To be successful in answering the questions on the weekly lab quiz, students will need to obtain data for the lab they missed from a group mate. The due date for the weekly lab quiz will be the **same** for a student that misses a lab for a religious observance or participation in a university-sponsored event as for students that did not

miss the lab.

Academic policy 1.6.1 requires that "reasonable" opportunities be provided to reduce the impact on a student's grade caused by missing a lab due to a religious observance or participation in a university-sponsored event. Since there is no way to recreate for absent students the execution of the hands-on, interactive experiences that occur during the lab class, there is **NO "reasonable"** opportunity to make up the following aspects of the course work and students absent due to religious observance or participation in university-sponsored activities are subject to the following:

- ★ Even though students are expected to obtain the data from activities conducted during a lab class that they missed (so that they can learn the concepts, prepare the write ups, and answer post-lab questions on the weekly lab quiz), students will NOT receive credit for those data sheets. In other words, students will receive a zero for the weekly data sheet grade for the week that they miss lab due to religious observance or participation in university-sponsored activities.
- ★ Students who are absent from the lab class during which the lab report peer-review process is carried out will NOT receive credit for the peer-review assignment and will not have the opportunity for their lab report to be reviewed by their peers prior to submitting the report for grading by the lab instructor.
- ★ Absences from lab due to a religious observance or participation in a university-sponsored activity, assuming the lab instructor has been informed of these absences within the first two weeks of the semester, WILL count toward the three absences permitted prior to triggering a zero for the entire course.

3. Consequence of Missing More Than Three Labs

Due to the importance of participating in the lab portion of the EVPP 113 course,

- **MISSING MORE THAN 3 LABS WILL RESULT IN AN AUTOMATIC ZERO FOR THE ENTIRE COURSE GRADE.**

4. Adjustments to Compensate for Strict Attendance Policy

The following provisions are meant to offset the strict attendance policy for lab.

a. Some Points Dropped from Three Lab Components

In calculating the final lab grade, 77 of the 84 weekly data sheet points will be included, 80 of the 88 weekly lab write up points will be included, and 50 of the 55 weekly pre-lab quiz points will be included. This is essentially equivalent to dropping the lowest grade from each of these three lab grade components.

b. Perfect Attendance Bonus

Since attendance at all lab class meetings is expected and important, STUDENTS WHO HAVE PERFECT ATTENDANCE IN LAB WILL RECEIVE EXTRA

CREDIT IN THE AMOUNT OF 6 POINTS (2%) ADDED TO THEIR FINAL LAB GRADE. For the purpose of this bonus, "perfect attendance" is defined as not missing any lab classes **AND** not having received any penalties for late arrival, early departure, or poor participation! In other words, being marked present for every lab but showing up late or leaving early to/from some number of them is not considered "perfect attendance" and neither is being present at every lab yet not participating fully in some number of them. Students who register for the class late and miss one or more labs for this reason, miss labs due to religious observation or participation in university-sponsored events will **NOT** be eligible for the perfect attendance bonus.

D. Switching Lab Sections

Students who anticipate that they will have schedule conflicts on more than three occasions for the lab section for which they are registered should consider changing their registration to a different section, space permitting. Lab instructors will **NOT** entertain requests for an "unofficial" lab switch. All changes in lab sections must be "official" (through the registrar's office) and, therefore, must be completed by **GMU's official last day to add a class, 1/29/18.**

E. Personal Electronic Device Use in Lab

No personal electronic devices are permitted to be used in lab class at any time **unless** specific permission to do so is granted by the instructor. This includes cell phones, music players, laptops, net books, tablets, ereaders, etc. Students using such devices in lab without the permission of the lab instructor will be considered to be engaging in inattentive behavior and will be subject to the penalties specified above in the "deductions from the weekly data sheets grade" section. There will be times that instructor's request that students use their personal devices to function as calculators or times and to access the internet and these uses would be considered permitted by the instructor.

F. Resolving Disputes Between Lab Instructors and Students

Students who have disputes with their lab instructors, particularly about grades, must make every effort to resolve those disputes by working directly with their lab instructor. Students are strongly encouraged to document the issues they have and all attempts they have made to resolve them. **Please note:** If a student seeks to involve the course coordinator in resolving disputes with a lab instructor, the student should be aware that the course coordinator will: 1) expect that the student has already approached the lab instructor and, therefore, that the lab instructor will be aware of the student and his/her identity and issue; 2) discuss the situation with the lab instructor and, in so doing, identify the student and the issue involved; and 3) require a meeting with the student, the lab instructor, and course coordinator, simultaneously, to discuss the issue and its resolution.

G. Email Expectations

To comply with federal privacy laws, both students and instructors **must** use their MasonLive email accounts to correspond with each other. It is further expected that students use their MasonLive email account in order to receive important University information, including messages related to this class (see also "student privacy" in section VI part D below). The instructor will **not** open emails if the sender is not identifiable/recognizable. The instructor will attempt to respond to emails within 48 hours but students must recognize that the instructor is not on-line 24/7. Clearly stating the purpose of the email in the subject line and the **lab section you are in** will help the instructor provide a faster response to emails. The instructor will **not** give priority to emails requesting information that is clearly available in the syllabus or on Blackboard, and the response to such emails will be "see syllabus."

H. Instructional Continuity in the Event of University Closings

In the event that a lab class is cancelled due to the university closing all day or opening late for any reason, students **may** be directed by the instructor to complete alternative, on-their-own activities as a way to make up for the cancelled lab class(es). In the event that it becomes necessary to do so, the instructor will inform students of the necessity and provide instructions for accessing and completing the alternative activities.

I. Grades in Blackboard

Lab grades will be recorded in Blackboard. It is the student's responsibility to compare the lab grades recorded in Blackboard with the grades noted on lab work that is returned to students and to inform the lab instructor in a timely manner of any discrepancies between the grades on returned work and the grades in Blackboard. The following information and grades will be recorded for lab in Blackboard:

- **Lab grades recorded each week:**

- **Weekly Data Sheets:** The column for each week's weekly data sheets grade will be headed with the date range for the week followed by WDS followed by the number of possible points. For example, for the first week of the semester the column will be headed "8/28-9/1 WDS (out of 7)". The weekly data sheets grades are recorded as the number of points received, not as a percentage score.
- **Weekly Write Up:** The column for each week's weekly write up grade will be headed with the date range for the week followed by WWU followed by the number of possible points. For example, for the first week of the semester the column will be headed "8/28-9/1 WWU (out of 8)". The weekly write up grades are recorded as the number of points received, not as a percentage score.
- **Weekly Pre-Lab Quiz:** The column for each week's weekly pre-lab quiz grade will be headed with the due date, followed by "PLQ due by 11:59pm" followed by abbreviations of exercise names and activity numbers, followed by the number of possible points, followed by the posting date and time. For example, for the second week of the semester the column will be headed "9/10 PLQ due 11:59pm - Succession on a Small Scale 1-2 (out of 5)". The weekly pre-lab quiz grades are recorded as the number of points received, not as a percentage score.

- **Lab grades recorded once during the semester:**
 - **Lab Syllabus and Safety Quiz:** The grade for the lab syllabus and safety quiz will be recorded as the number of points received, not as a percentage score, and will appear in a column headed "9/10 Syllabus-Safety Quiz (out of 11.75)".
 - **Scientific Paper Tutorial:** The grade for the scientific paper tutorial assignment will be recorded as the number of points received, not as a percentage score, and will appear in a column headed "10/1 Sci Pap Tutorial due by 11:59pm - Scientific Paper Tutorial On-Line Assignment ASSESSMENT".
 - **Lab Report Peer-Review Process:** The grade for the lab report peer-review process will be recorded as the number of points received, not as a percentage score, and will appear in a column headed "10/23-10/27 Peer Rev (out of 12)".
 - **Formal Lab Report:** The grade for the formal lab report will be recorded as a percentage score, not as the number of points received, and will appear in a column headed "FLR Due....." followed by the date, lab section information, and instructor name and "Formal Lab Report Electronic Submission."
- **Lab grade total columns:** The following columns, headed as shown below, will update automatically throughout the semester:
 - **"WDS Total (max of 77)":** This column will show a running total of all points accrued to date on the weekly data sheets. Since Blackboard cannot "drop" one of the scores it is important to note that this column could show a total higher than the maximum 77 points from this grade component that will count toward the final lab grade.
 - **"WWU Total (max of 80)":** This column will show a running total of all points accrued to date on the weekly write ups. Since Blackboard cannot "drop" one of the scores it is important to note that this column could show a total higher than the maximum 80 points from this grade component that will count toward the final lab grade.
 - **"PLQ Total (max of 50)":** This column will show a running total of all points accrued to date on the weekly pre-lab quizzes. Since Blackboard cannot "drop" one of the scores it is important to note that this column could show a total higher than the maximum 50 points from this grade component that will count toward the final lab grade.
 - **"# Lab Absences":** This column will show a running total of THE NUMBER OF LAB ABSENCES THAT HAVE OCCURRED TO DATE IN THE SEMESTER. This is not a point column that contributes to the total number of lab points accrued! Since students who miss more than three lab classes will receive a zero for the entire lab portion of the course, this column is provided as a way for students to easily track their total number of lab absences to date. A "0" in this column is a good thing - meaning that a student has had no lab absences. A "4" in this column means that a student has missed more than three lab classes and will, therefore, receive 0 out of the 300 possible points for lab.

It is important to note that Blackboard is **NOT** set up to calculate student's overall lab grade at any point during the semester. Blackboard creates its own "total" column to which everything entered into Blackboard is added, regardless of the purpose of the values

entered. For example, the "WDS Total" column would be added to the total that Blackboard automatically creates, along with all of the individual weekly data sheets grades that have been recorded.

It is the student's responsibility to understand the preceding paragraph. Failing to understand the preceding paragraph could result in a student mistakenly concluding that their lab grade (or course grade) is much higher than it actually is.

VII. University Policies

A. Academic Integrity

EVPP 113 lecture and lab is governed by the GMU Honor Code. Please refer to the Office of Academic Integrity website at <http://oai.gmu.edu/the-mason-honor-code/> for a full description of the code and the honor committee process. All course work is expected to be completed INDIVIDUALLY. Copying classmates' work on any assignment or exam (except for the sharing of raw data) is considered **cheating** and a violation of the Honor Code. The formal lab report must be the independent work of each student. If an instructor discovers that two or more students have submitted work (especially lab reports) that are partially or entirely identical, all students involved will be reported to the Honor Committee with a minimum recommended sanction of a zero on the assignment. Violations of the Honor Code will not be tolerated.

Students suspected of cheating during exams will, at a minimum, be asked to change seats and may be asked to leave and forfeit the exam. To minimize the possibilities of cheating during the final exam, assigned seating may be used.

Another aspect of academic integrity is the free exchange of ideas. It is expected that all aspects of this class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt about any aspect of academic integrity as it pertains to this course, please ask for clarification.

B. Disability Accommodations

If you have a learning or physical difference that may affect your academic work, you will need to furnish appropriate documentation to the Office of Disability Services. If you qualify for accommodation, the ODS staff will give you a form that details your accommodations and you must provide your instructor with a copy of that form. In addition to providing your instructor with the appropriate form, please take the initiative to discuss your accommodations with your instructor at the beginning of the course, and as needed during the semester. If you have contacted the Office of Disability Services and are waiting to hear from a counselor, please inform your instructor. For more information on disability accommodations, visit the Office of Disability website at <http://ods.gmu.edu>.

C. Diversity

The following is George Mason University's "Diversity Statement", verbatim from <http://ctfe.gmu.edu/professional-development/mason-diversity-statement/>.

"George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies,

procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth.

An emphasis upon diversity and inclusion throughout the campus community is essential to achieve these goals. Diversity is broadly defined to include such characteristics as, but not limited to, race, ethnicity, gender, religion, age, disability, and sexual orientation. Diversity also entails different viewpoints, philosophies, and perspectives. Attention to these aspects of diversity will help promote a culture of inclusion and belonging, and an environment where diverse opinions, backgrounds and practices have the opportunity to be voiced, heard and respected.

The reflection of Mason's commitment to diversity and inclusion goes beyond policies and procedures to focus on behavior at the individual, group and organizational level. The implementation of this commitment to diversity and inclusion is found in all settings, including individual work units and groups, student organizations and groups, and classroom settings; it is also found with the delivery of services and activities, including, but not limited to, curriculum, teaching, events, advising, research, service, and community outreach.

Acknowledging that the attainment of diversity and inclusion are dynamic and continuous processes, and that the larger societal setting has an evolving socio-cultural understanding of diversity and inclusion, Mason seeks to continuously improve its environment. To this end, the University promotes continuous monitoring and self-assessment regarding diversity. The aim is to incorporate diversity and inclusion within the philosophies and actions of the individual, group and organization, and to make improvements as needed."

D. Student Privacy

Student Privacy is governed by the Family Educational Rights and Privacy Act (FERPA). Students must use their MasonLive email account to receive important University information, including messages related to this class (see also "email expectations" below). See <http://registrar.gmu.edu/facultystaff/student-privacy/> for more information.

E. Student Support Resources

There are a number of resources available to students at George Mason University to help facilitate student success. Some of those resources and links to the associated websites are provided below:

- University Catalog at <http://catalog.gmu.edu/>
- University Policies at <http://universitypolicy.gmu.edu/>
- Counseling and Psychological Services at <http://caps.gmu.edu/>
- INTO George Mason (program for international students) at <http://www.intohigher.com/us/en-us/the-universities/into-mason.aspx>
- Learning Services at <http://caps.gmu.edu/learning-services/>
- University Career Services at http://careers.gmu.edu/?_ga=1.173099747.1501406856.1441291419
- University Writing Center at <http://writingcenter.gmu.edu/>

F. Emergency Preparedness

George Mason University is committed to maintaining a safe learning environment. All members of the academic community should be familiar with the basic emergency procedures for a variety of situations including severe weather, medical emergencies, and workplace and campus violence. Students are strongly encouraged to register their mobile phone to receive emergency notifications from Mason Alert (go to

http://ready.gmu.edu/masonalert/?_ga=1.102828992.1501406856.1441291419 to register) in the event of a campus emergency. Please review the Emergency Preparedness Guides at http://ehs.gmu.edu/emergencymanagement/plansguides/?_ga=1.102878912.1501406856.1441291419.

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VIII. EVPP 113 Lab - Schedule - Spring 2018

Mon	Tue	Wed	Thur	Fri		Lab Exercises/Activities	Location
1/22	1/23	1/24	1/25	1/26	<ul style="list-style-type: none"> • Administrative review • Syllabus review • Safety review • Tragedy of the Commons <ol style="list-style-type: none"> 1. <i>Alternative</i> - Public and Private Fishing (<i>handout provided</i>) 2. Hardin's Article 		Lab
1/29	1/30	1/31	2/1	2/2	<ul style="list-style-type: none"> • Biodegradation & Solid Waste Mgt. <ol style="list-style-type: none"> 1. Biodegradation - Set Up 4. Simulated Landfill - Set Up <ul style="list-style-type: none"> • Energy: Alternatives and Conservation <ol style="list-style-type: none"> 11. Hot Water Heater Insulation 13. Personal Energy Inventory - Data Collection - <i>explanation only-not due</i> 		Lab
2/5	2/6	2/7	2/8	2/9	<ol style="list-style-type: none"> 10. Building Insulation & Light Bulbs 12. Watt Usage by Electrical Devices 13. Personal Energy Inventory - Data Collection - <i>questions on data collection?-not due</i> <ul style="list-style-type: none"> • Water Quality <ol style="list-style-type: none"> 8. Pollutants - Inoculating Algal Cultures 		Lab
2/12	2/13	2/14	2/15	2/16	<ul style="list-style-type: none"> • Energy: Alternatives and Conservation <ol style="list-style-type: none"> 4. Photovoltaics 5. Generating Electricity with a Turbine 6. Wind Turbines 7. Hydrogen Fuel Cell 13. Personal Energy Inventory - Data Collection - due 14. Personal Energy Inventory - Data Compilation 		Lab

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Mon	Tue	Wed	Thur	Fri		Lab Exercises/Activities	Location
2/19	2/20	2/21	2/22	2/23	<ul style="list-style-type: none">• Pollution Remediation<ul style="list-style-type: none">1. Pollution Consequences - Effects of an Oil Spill on Feathers2. Remediation - Mechanical Cleanup of Oil Spill• Energy: Alternatives and Conservation<ul style="list-style-type: none">1. Converting Sunlight into Heat2. Solar Water Heater SCIENTIFIC PAPER TUTORIAL ON-LINE ASSIGNMENT DUE 2/25/18 by	Lab	
2/26	2/27	2/28	3/1	3/2	<ul style="list-style-type: none">• Water Quality<ul style="list-style-type: none">7. Drinking Water Quality9. Pollutants - Effects on Algal Growth• Writing a Lab Report	Lab	
3/5	3/6	3/7	3/8	3/9	<ul style="list-style-type: none">• Biodegradation & Solid Waste Management<ul style="list-style-type: none">6. Microbial Degradation - Set Up8. Microbial Composition of Various Soil Environments - Set Up• Pollution Remediation<ul style="list-style-type: none">3. Bioremediation of Oil Spill - Set Up6. Bioremediation of an Industrial Pollutant - Set Up	Lab, field (on campus)	
3/12	3/13	3/14	3/15	3/16	<ul style="list-style-type: none">• NO LABS - SPRING BREAK	Not applicable	
3/19	3/20	3/21	3/22	3/23	<ul style="list-style-type: none">• Biodegradation & Solid Waste Management<ul style="list-style-type: none">2. Biodegradation - Observation7. Microbial Degradation - Completion9. Microbial Composition of Various Soil Environments - Completion	Lab, field (on campus)	
3/26	3/27	3/28	3/29	3/30	<ul style="list-style-type: none">• Water Quality<ul style="list-style-type: none">10. Wastewater Treatment• Formal Lab Report PEER-REVIEW PROCESS	Lab	

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Mon	Tue	Wed	Thur	Fri		Lab Exercises/Activities	Location
4/2	4/3	4/4	4/5	4/6	<ul style="list-style-type: none"> 5. Groundwater Purification by Soil 4. Air Quality - Acid Rain 5. Air Quality - Detecting Atmospheric Gases 	Water Quality Atmosphere Issues	Lab, field (on-campus)
4/9	4/10	4/11	4/12	4/13	<ul style="list-style-type: none"> 4. Bioremediation of Oil Spill - Monitoring 7. Bioremediation of an Industrial Pollutant - Monitoring 12. Ozone Depletion - Effect of UV Radiation on Cells - Set Up • Formal Lab Report Electronic Submission Due 	Pollution Remediation Atmosphere Issues	Lab, field (on-campus)
4/16	4/17	4/18	4/19	4/20	<ul style="list-style-type: none"> 1. Green Building Field Trip - <i>modified to on-campus only</i> 1. Air Quality - Particulates - Set Up 13. Ozone Depletion - Effect of UV Radiation on Cells - Completion 	Sustainability Atmosphere Issues	Lab, field (on-campus)
4/23	4/24	4/25	4/26	4/27	<ul style="list-style-type: none"> 3. Biodegradation - Completion 5. Simulated Landfill - Completion 2. Air Quality - Particulates - Completion 	Biodegradation & Solid Waste Management Atmosphere Issues	Lab, field (on-campus)
4/30	5/1	5/2	5/3	5/4	<ul style="list-style-type: none"> 5. Bioremediation of Oil Spill - Completion 8. Bioremediation of an Industrial Pollutant - Completion 8. Global Warming - CO₂ - An Efficient Greenhouse Gas • Graded Formal Lab Report Available to Students 	Pollution Remediation Atmosphere Issues	Lab