*UPDATED: 25 January 2021*

# Course Syllabus

## Course Description

This class will focus on developing the skills and mindset to communicate concisely and effectively about your scholarly interests. While emphasis is placed on writing, this class is more about how to frame and discuss your research ideas both on paper and in person.

## Course Information

**Course Name**: Principles of Environmental Toxicology
**Course Number**: EVPP445/545 BIOL417
**Course Instructor**: Dr. Scott Glaberman
**Course Format**: Online (Zoom) Synchronous
**Course Time**: Wednesdays 1:30-4:20 pm
**Instructor Contact**: sglaberm@gmu.edu

## Course Objectives

After this class, you will be able to:

- Use current environmental toxicology tools
- Understand some of the most well-known toxicity pathways
- Identify the fate properties of chemicals
- Identify the toxicity properties of chemicals
- Synthesize environmental toxicology data in terms of risk

What you will produce in this class:

- A 5-10 minute video about plastics and the environment
- A series of discussions and exercises that reinforce the topics in this class

## Course Materials

From time to time we will refer to this free online textbook:
https://maken.wikiwijs.nl/147644/Environmental_Toxicology__an_open_online_textbook

## Course Grading

This course is self-graded. You will use the course rubric to determine your level of effort and mastery of the course material. Students are expected to complete all assignments and participate in class discussion. In extreme cases, if you don't engage in

the course, meaning you don't regularly attend class, complete exercises, or participate in group work, I reserve the right to change your grade according to the rubric.

**Grading Scheme**

| Number Grade | Letter Grade |
|---|---|
| 97-100 | A+ |
| 93-96 | A |
| 90-92 | A- |
| 87-89 | B+ |
| 83-86 | B |
| 80-82 | B- |
| 77-79 | C+ |
| 70-76 | C |
| 60-69 | D |
| <60 | F |

**Tentative Class Schedule**

| Date | Topic | Tools | Assignment* |
|---|---|---|---|
| **1/27** | Introduction | EWG Report | EWG Report and Discussion |
| **2/3** | Environmental Law | ELI Website, U.S. CFR, Pesticide Label Database, TSCA Inventory | Environmental Law Exercise |
| **2/10** | Mapping Chemicals | Toxics Release Inventory (TRI) | Toxics Release Exercise |
| **2/17** | Fate and Transport | Conceptual Mapping, EPI Suite | Mapping Exercise and Fate and Transport Exercise |
| **2/24** | Bioaccumulation | KABAM | Bioaccumulation Exercise |
| **3/3** | Toxicity Mechanisms | Lecture | TBD |
| **3/10** | Toxicity Data | OECD Guidelines | OECD Guidelines Exercise |
| **3/17** | Toxicity Prediction | ECOSAR, Web-ICE, EcoTTC, SeqAPASS | Web-ICE Exercise, ECOSAR Exercise |
| **3/24** | Species Sensitivity Distributions (SSDs) | ECOTOX, EPA SSD Tool, R | Create Your Own SSD Exercise |
| **3/31** | Adverse Outcome Pathways (AOPs) | AOP Wiki | Build an AOP Exercise |
| **4/7** | Risk Assessment | All | Chemical Spill Exercise |
| **4/14** | Effects-Based Monitoring | ToxCast, ToxEval, ToxMixtures | Risk Mapping Exercise |
| **4/21** | Population Modeling | NetLogo, ToxTranslator, PopGUIDE | TBD |
| **4/28** | Plastics Presentations | Discuss Projects | |

*Assignment always due by next class unless otherwise stated

**Scheduled Guest Lectures**

| Date | Topic | Guest Speaker | Affiliation |
|---|---|---|---|
| **2/3** | Video Making 101 | Richard Wood | GMU-TV |
| **3/17** | EnviroTox Database | Dr. Michelle Embry | Health & Environmental Sciences Institute |
| **4/21** | Populatiom Modeing | Dr. Andrew Kanarek | U.S. EPA Office of Pesticide Programs |