BIOE 246/QSB 254: Aquatic Plastic Pollution
Fall, 2021

Text ***"MICROPLASTIC CONTAMINATION IN AQUATIC ENVIRONMENTS: An Emerging Matter of Environmental Urgency"***

Edited by: EDDY Y. ZENG
Publisher: Elsevier (2018)
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https://www.sciencedirect.com/book/9780128137475/microplastic-contamination-in-aquatic-environments

Instructor

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Lecture Time and Location **3 credits** **TR** **10:30-11:45AM** **CLSSRM 272**

Office hours: please email to set up Zoom appointment

Overview: Plastic accumulating in our oceans and freshwater systems has become a global crisis. Plastic debris has been detected worldwide in all major aquatic habitats, in sizes from microns to meters. Basic concepts, analysis, and current status for aquatic plastics will be introduced. This course will also discuss plastic pollution related seafood safety and health concern. Major focus on microplastics and nanoplastics will be highlighted.

Course Objectives/Student Learning Outcomes: *By the end of this course, students will be able to:*

1. Explain the basic concepts of aquatic plastic pollution.
2. Understand general tools and modern techniques to study marine/freshwater plastics.
3. Identify mechanisms regulating transport paths and fate of marine/freshwater plastics.
4. Understand the impact of plastics on aquatic food web, their associated toxicity on aquatic organisms and seafood safety.
5. Students will be able communicate information and their knowledge about aquatic plastics.

Learning Outcomes will be assessed through written reports, oral presentations, and classroom discussion.

Program Learning outcomes:
The course relates to these following bioengineering graduate program learning outcomes:
1. Are able to identify significant research questions in Bioengineering and contextualize their research in the current literature of the field.
2. Are able to apply their knowledge of mathematics, physical and life sciences, and engineering to solve a problem, and to design and implement a suitable solution.
6. Are able to communicate effectively through oral, visual, and written means, with a broad range of technical audiences.

Course Policies:

Grading

70% Written Reports (two midterm Reports 20% each and one final Report 30%)
1st report: plastic pollution current status
2nd report: plastic pollution impact on ecological or biological systems
3rd report: strategies or approaches to reduce or clean up plastic pollution

30% Oral presentations (three presentations, 25-30 min)
100 % Total

Academic Dishonesty Statement:

Each student in this course is expected to abide by the University of California, Merced's Academic Honesty Policy.

Disability Statement: Accommodations for Students with Disabilities: The University of California Merced is committed to ensuring equal academic opportunities and inclusion for students with disabilities based on the principles of independent living, accessible universal design and diversity. Requests for academic accommodations are to be made during the first three weeks of the semester, except for unusual circumstances. Students are encouraged to register with Disability Services Center to verify their eligibility for appropriate accommodations.