Title: 5B. Environmental Risk Assessment

Goal: The goal for this module is to provide students an understanding on how risk assess management impacts nanotechnology.

Module Objectives: Topics covered in the module: 1) Nanoparticle transport, aggregation, and deposition; 2) Treatment of nanoparticles in wastewater; 3) Potential ecological hazard of nanomaterials; 4) Environmental toxicology and risk assessment; and 5) Balancing risks and rewards.

Prerequisites by Topic:

- None

Required Text: N/A
Reading: Write-up of this module
References: [Refs. 38, 42-43]

Student Learning Outcomes:

- Students will understand the principles of nanoparticle transport, aggregation, and deposition.
- Students will understand the aspects of treating of nanoparticles in wastewater.
- Students will understand the potential ecological hazard of nanomaterials.
- Student will learn how environmental toxicology and risk assessment impact the use of nanomaterials.
- Students will learn how balancing risks and rewards will sustain the growth of nanotechnology.

Topics Covered: (Green highlighted topics are priority#1, Yellow highlighted are if time permits)

- **Lecture I**
  - Nanoparticle transport, aggregation, and deposition
  - Treatment of nanoparticles in wastewater
- **Lecture II**
  - Potential ecological hazard of nanomaterials
  - Environmental toxicology and risk assessment
  - Balancing risks and rewards

Relationship to ABET Program Outcomes
[Note: Please, refer ABET program outcomes list (a) through (l) in attached standard template.]

(f) An understanding of professional and ethical responsibility.
(j) A knowledge of contemporary issues.
(h) The broad education necessary to understand the impact of engineering solutions in a global economic, environmental, and societal context.