

Title: 1A. What is nanotechnology and ethics in nanotechnology?

Goal: The goal for this module is to provide students an understanding of nanotechnology and ethics in nanotechnology

Module Objectives: This module will provide the students with an overview of what is nanotechnology and how ethics will impact the social norms as nanotechnology will be more prevalent in society. Topics covered in the module: 1) Defining nanotechnology and ethics in nanotechnology; 2) Historical perspective (Richard Smalley); 3) ASTM E2456 terminology used in nanotechnology; 4) National agenda: US congressional testimony on societal implications nanotechnology; 5) Role of National nanotechnology initiatives (NNI); 6) Societal dimensions of nanotechnology.

Prerequisites by Topic:

- None

Required Text: N/A

Reading: Write-up of this module

References: [Refs. 14-19]

Student Learning Outcomes:

- Students will know how the term nanotechnology is defined and which applications fall under nanotechnology
- Students will have appreciation for ethics in nanotechnology
- Students will learn about US government's nanotechnology initiative
- Students will understand societal dimensions of nanotechnology

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

- **Lecture I**
 - Defining nanotechnology and ethics in nanotechnology
 - Historical perspective (Richard Smalley)
 - ASTM E2456 terminology used in nanotechnology
- **Lecture II**
 - National agenda: US congressional testimony on societal implications nanotechnology
 - Role of National nanotechnology initiatives (NNI)
 - Societal dimensions of nanotechnology

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.