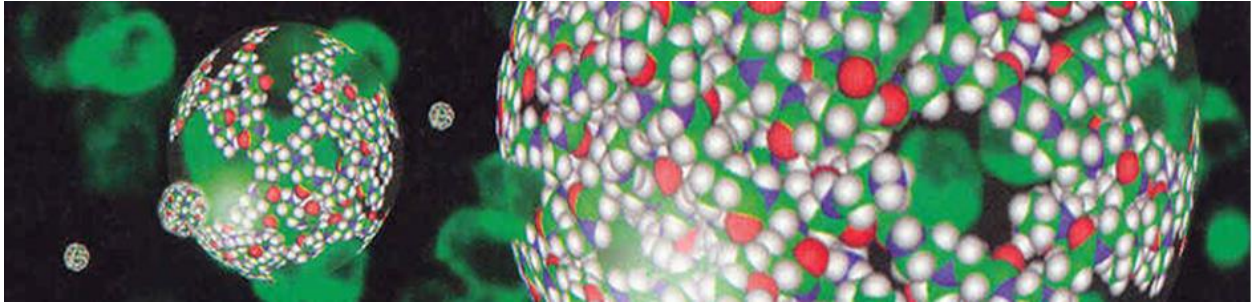


# BIOMEDICAL NANOTECHNOLOGY



## Study Questions

Study questions are designed to reinforce your understanding of the lesson material. Please create a Microsoft Word document and submit your completed study questions to the instructor via email.

### Module 1

1. Define nanotechnology in your own words.
2. List and discuss 3 unique properties of nanoscale materials.
3. Describe the cellular structure.
4. Define Biomimicry
5. Briefly describe 3 nanotechnology applications

### Module 2

1. List some of the nanotechnology applications for medical
2. Briefly discuss how nanotechnology can be used in implantable delivery systems
3. What are some of the emerging nano-drug delivery vehicles?
4. How can nanotechnology be used for medical imaging applications?
5. How can nanotechnology be used for cancer detection applications?
6. How can nanotechnology be used for tissue regeneration applications?

### Module 3

1. Define peptides. What are their functions?
2. What is the distinction between proteins and polypeptides?
3. Define liposomes. What are their functions?
4. Define dendrimers. What are their functions?
5. Define micelles. What are their functions?

### Module 4

1. Define quantum dots. What are their functions?
2. How are quantum dots used in semiconductor applications?

3. How are quantum dots used in medical imaging and diagnostic applications?
4. How do coatings enhance the properties of quantum dots?
5. Define metal nanoparticles. What are their functions?
6. Define magnetic nanoparticles. What are their functions?

## Module 5

1. Briefly describe the electrospinning process
2. How does electrospun webs compare to the extracellular matrix?
3. What are some of the polymers used to fabricate scaffolds?
4. Define carbon nanotubes.
5. Briefly discuss 2 carbon nanotubes that are used in biomedical applications?