Assignment 2

Chemical engineers are increasingly involved in the development, design, and implementation of new technologies that interface with biology, medicine, and nanomaterials. These activities often require a deep understanding of interactions at the nanoscale, whether involving biological molecules like proteins and DNA or synthetic atomic-level materials like carbon nanotubes.

Each group will prepare a presentation based on a recent advances in bio- or nano-technology, as shown below. Articles are given as references for each topic, although groups are encouraged to explore related articles mentioned in references, or other sources of information on the topic. In particular, a good resource for additional graphics and explanations are the individual research websites of the authors involved. Articles can be downloaded from the journal websites using any computer with a campus IP address (to activate UCSB’s institutional subscriptions).

Your challenge in this assignment will be to formulate a coherent and interesting story pertaining to the subject material. You should not provide a complete overview of all of the material in the articles given, as there is too much information; rather, you should select out a subset of the work that forms an overall cohesive narrative that will be interesting to your audience.

Groups


Some suggested issues you should address in your presentation are given below. Recall that your presentation should be approximately 12 minutes long, excluding questions at the end.

- What is the new science or technology? Who has developed it, where and when?
- What is new about this technology? How does it differ from previous technologies?
- Why is it important? What impact does/will it have on science, engineering, and society?
- What are the basic scientific features of this new advance, i.e., how does it work?
- What areas for development, challenges, and applications lie in the future?
- What role does chemical engineering have here? How will the technology impact chemical engineers? What skills will be required in working with this technology?

Schedule

10/27: Groups 1-4 and 9-12

11/3: Groups 5-8 and 13-15

Group member roles

For this assignment, the second group member (as listed in the group assignments document) will be responsible for answering questions, the third for the first half of the presentation, and first for the second half.