

Course Plan for SCI X400.01: Introduction to Biophysics

Week 1

Lesson 1 – Review of Quantum Physics and Cellular Biology

By the end of this lesson, students will be able to :

- Use the time-independent Schrodinger equation to solve basic one-dimensional field problems
- Describe the basic functions of cells
- Describe the electrodynamic principles that govern intra-nuclear behavior in cells

Method(s) of Instruction:

- Narrated PowerPoint presentations recorded by instructor
- WebEx Office hours on Tuesday, July 2nd from 7-8pm PST
- Interactions between instructor and students in the discussion forum

Assignments Due:

- Post to Welcome Forum – please include a few sentences about your expectations for the course
- Post to Discussion Forum #1 by 11:59pm PST on Thursday, July 4th, and provide feedback to 2-3 of your peers by 11:59pm PST on Sunday, July 7th.

Week 2

Lesson 2 – Vector and Tensor Analysis

By the end of this lesson, students will be able to :

- Use analytical principles from vector and tensor analysis to solve basic problems
- Apply vector and tensor analysis to the time-dependent, three-dimensional representation of biological systems

Method(s) of Instruction:

- Narrated PowerPoint presentations recorded by instructor
- Simulation of building 3D representations of biological systems
- Interactions between instructor and students in the discussion forum

Assignments Due:

- Homework problem set 2 (Arnold, p. 58)
- Literature review: summarize 10 recent papers on biophysics (2-4 pages)
- Post to Discussion Forum #2 by 11:59pm PST on Thursday, July 11th, and provide feedback to 2-3 of your peers by 11:59pm PST on Sunday, July 14th.