Rutgers, The State University of New Jersey

SYLLABUS

MAE 650:472 Biofluid Mechanics (Spring, 2007)

Lectures: TTh 6:40 – 8:00 pm, SEC-206
Office Hours: Tue. 4:00–6:00 pm or by appointment

Text:

Biofluid Dynamics: Principles and Selected Applications (Clement Kleinstreuer, Taylor & Francis, 2006)

References:

Biomechanics: Circulation (Fung, Y. C., Springer Verlag, 1996)
Basic Transport Phenomena in Biomedical Engineering (Fournier, R. L. L., Taylor & Francis, Inc., 1998)

Instructor: Prof. Guo, Eng. Bldg. Rm. B241, Phone 5-2024, guo@jove.rutgers.edu

Course Requirements: Grading:

Homework: 20%
Computer Project: 20%
Mid-term exam: 30%
Final exam: 30%

Course Content: (To be taken as a course content guide and subject to modifications)

1. Introduction
2. Review of Basic Fluid Mechanics
3. Cardiovascular, Circulatory, and Pulmonary Systems
4. Blood Rheology and Diseases
5. Models of Biofluid Flows and Drug Delivery
6. Computational Biofluid Mechanics
7. Basic Transport Phenomena in Biological System
8. Bioheat Transfer
9. Seminar, Project & Presentation
10. Mid-term and Final Exams

Projects:

Projects that effectively attempt to apply or expand upon the course content in class will constitute a solid project. Ideas for project proposals can be discussed and the incorporation of various modalities encouraged. Presentations should be anticipated in the last lecture week of the semester.