

ENGR 4740 – Biomaterials
Fall 2003, TR 3:30 – 4:45 pm (Room 305)

Instructor:

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Texts: None. Supplements to be provided by the instructor.

References:

1. Biomaterial Science: An Introduction to Material in Medicine, by "*Ratner, Hoffmanb, Schoen & Lemons*", Academic Press.
2. Biological Performance of Materials: Fundamentals of Biocompatibility, 3rd Edition, by "*Jonathan Black*", Marcel Dekker, Inc.
3. Biomaterials Science and Engineering, by "*Joon Park*", Plenum Press.
4. Biomaterials: an Introduction, 2nd Edition, by "*Park & Lakes*", Plenum Press.
5. Bone Biomechanics, by "*Stephen Cowin*", CRC Press.
6. Basic Orthopaedic Biomechanics, 2nd Edition, by "*Mow & Hayes*", Lippincott Williams & Wilkins Publishers.
7. Biomechanics: Mechanical Properties of Living Tissues, by "*Y.C. Fung*", Springer-Verlag.

Homework:

Homework assignments will be given and graded periodically.
Late assignments will incur a 10% per day penalty. Assignments are due during class.

Project:

Students will work in teams to complete a project. The output will be a written report and a presentation describing the results of the project.

Attendance Policy: Attendance of classes and labs is mandatory. Students who are regularly absent from class will not be included in any adjustment (curving) of the final grades. If a student has a valid excuse for missing a class, they must inform the instructor beforehand.

Cellular phones must be turned OFF during class/lab. Repeated disruptions will count as absences.

Prerequisite:

BIOL 1108: Principles of Biology II
ENGR 2140: Strength of Materials

Overview:

The specific topics of lectures and laboratories are subject to change.

Lectures	Number of classes
Introduction	2
Hard tissues	4
Soft tissues	6
Implant materials	3
Biocompatibility	6
Joint replacement & implant	5
Exam & review	3
Presentation	1
Total classes	30

Grading:

Note: Students who are regularly absent from class will not be included in any adjustment (curving) of the final grades.

Semester grades will be computed as follows.

Homework:	25%
Project & Presentation:	25%
Two Exams:	25%
<u>Final:</u>	<u>25%</u>
Total:	100%_____