

INJURY PHYSIOLOGY

Spring Semester 2007
MW 2:15pm-3:45pm, Hancock 220

Goal: The goal of this course is to present an introduction to the physiology of injury. The course will focus on the pathophysiology, mechanisms, and outcomes of injury in mammalian tissues. The course will explore injury physiology at the organ, tissue, and cellular level. Topics will include physiology of injury to tissues of the skeletal system, the peripheral and central nervous systems, the pulmonary system, the abdomen, the pregnant female, and the eye.

Course Objectives:

- Familiarization with basic concepts in anatomy, biology, and engineering that form the basis for understanding injury physiology
- Ability to apply these basic concepts to more complex analysis
- Understanding of the research tools available in Injury Physiology and how to access these tools.
- Critical evaluation of the current state of research on key topics in injury physiology
- Provide a framework for self-teaching and research

Instructors:

Instructor	Phone:	Email:
Stefan Duma	540-231- 3945	duma@vt.edu
Clay Gabler	540-231-7190	gabler@vt.edu
Joel Stitzel	336-716-5597	jstitzel@wfubmc.edu

Text: Currently, there is no single book that provides an interaction to the field of injury physiology. For this reason, individual handouts will be prepared for each topic as needed and augmented by guest lectures. (you will need to get a 2 or 3 inch D ring binder)

Grading:

Homework and Quizzes (Includes Pre and Post)	20%
Exam 1	20%
Exam 2	20%
Individual lecture/project	10%
Final Exam	25%
Class Folder*	<u>5%</u>
Total	100%

*Class Folder: Each student must bring their class folder to the final exam. At this time the Instructor will grade them. To receive full credit, they must be neat, organized with clearly marked tabs that denote each major topic.

Course Organization:

- Homework assignments and quizzes will be given periodically throughout the semester. Specifically, each lecture will contain a 'pre-class' reading assignment. At the beginning of that lecture a short quiz on the reading material will be given and graded.
- There will be two exams and one final exam during the semester
- Each student will be required to prepare and present one lecture. Each student will work closely with their advisor to develop this. Some students may be allowed to do an outside project rather than the lecture.
- The final grade will be determined by a combination of the course requirements:

COURSE POLICY:

- Late Assignments. Projects are due at the beginning of the class on the due date. No credit will be given for late assignments.
- Format. Our preference is for all projects to be prepared using Microsoft Office. Any portions which are handwritten should be submitted on Engineering Paper, and should be neatly written up in a clear and logical fashion. If we can't read it, we won't grade it.
- Attendance. Mandatory at all classes.
- Extra Credit. Extra credit will be given for attending a guest lecture (outside of class time) and asking a question. We will have these periodically throughout the semester. The extra credit will be applied to the quiz portion of the grades.

Course Topics and Schedule

Class Date	Topic	Coordinator	Instructor
Jan 17	Overview of Injury Physiology	Dr. Gabler	Dr. Meredith
Jan 22	Eye	Dr. Duma	Dr. Duma
Jan 24	Eye	Dr. Duma	Dr. Duma
Jan 29	Pregnant	Dr. Duma	Dr. Duma
Jan 31	Pregnant	Dr. Duma	Dr. Duma
Feb 5	Brain	Dr. Gabler	Dr. Gabler
Feb 7	Brain	Dr. Gabler	Dr. Brolinson
Feb 12	Brain	Dr. Gabler	Dr. Gabler
Feb 14	Brain	Dr. Gabler	Dr. Gabler
Feb 19	Lung	Dr. Stitzel	Mr. Gayzik
Feb 21	Lung	Dr. Stitzel	Mr. Gayzik
Feb 26	Lung/Chest (Brain Symposium in DC for NHTSA)	Dr. Stitzel	Dr. Hoth
Feb 28	Exam I	Dr. Duma	Dr. Duma
Mar 4-9	Spring Break		
Mar 12	Traumatic Brain Injury	Seminar	Dr. Morrison
Mar 14	Pediatric Head Injury	Seminar	Dr. Coats
Mar 19-21	No Class (Attend Symposium)	Seminar	Various
Mar 23-24	Friday/Saturday Symposium, Attend Lectures	Seminar	Various
Mar 26	Ethanol Metabolism and Detection	Dr. Gabler	Mr. Webster
Mar 28	Multi-scale injury biomechanics	Seminar	Dr. W. Hardy
April 2	Astrocyte Injury	Dr. Gabler	Ms. C. Hampton
April 4	Traumatic Brain Injury – Animal Models	Dr. Gabler	Mr. D. Gabauer
April 9	Exam II	Dr. Gabler	Dr. Gabler
April 11	Abdomen/Other	Dr. Stitzel	Dr. Stitzel
April 16	Abdomen/Other (Injury Physiology of the Aging)	Dr. Stitzel	Dr. Stitzel
April 18	Child Injury Physiology	Dr. Stitzel	Dr. Pranikoff or Petty
April 23	Bone	Dr. Duma	Dr. Duma
April 25	Brachial Plexus Injuries	Dr. Duma	Mr. S. Rowson
April 30	Spine Injury	Dr. Gabler	Thor/Wang
May 2	Review and Summary		
May 7	Final Exam 2:05 pm to 4:05 pm	Dr. Duma	Dr. Duma