

INJURY PHYSIOLOGY

Spring Semester 2009

Tuesday and Thursday 2:15 – 3:45pm; Burruss Hall 123A

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
Warren Hardy	540-231-4314	whardy@vt.edu
Jessica Sparks	336-716-4543	jsparks@wfubmc.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	25%
Exam 2	25%
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.

#	Class Date	Topic	Coordinator	Instructor
1	Tues Jan 20	Class overview, introduction	Duma	Duma
2	<u>Thurs Jan 22</u>	Epidemiology of TBI/Injury Mechanisms	Gabler	Gabler
3	Tues Jan 27	Brain injury research Macro to Micro	Duma	Duma
4	<u>Thurs Jan 29</u>	Brain FEM, dummies, standards, criteria	Duma	Rowson
5	Tues Feb 3	Concussions and the Sideline Clinician	Duma	Brolinson
6	<u>Thurs Feb 5</u>	Xray of Brain Motion During Impact	Hardy	Hardy
7	Tues Feb 10	Neural Injury at the Cellular Level - I	Duma	Rzagalinski
8	<u>Thurs Feb 12</u>	Neural Injury at the Cellular Level - I	Duma	Rzagalinski
9	Tues Feb 17	Surgical Overview	Stitzel	Meredith
10	<u>Thurs Feb 19</u>	Eye Injury Biomechanics II	Duma	Duma/Jill
11	Tues Feb 24	Neck stingers and neck collars	Duma	Rowson
12	<u>Thurs Feb 26</u>	BCVI, Carotid Neck, modeling	Stitzel	Stitzel/Kerry
13	Tues Mar 3	EXAM I	Duma	Duma
14	<u>Thurs Mar 5</u>	Aorta overview	Hardy	Hardy
	<u>Mar10-12</u>	<i>Spring Break</i>		
15	Tues Mar 17	Hoth Lung 1 (unconfirmed)	Stitzel	Hoth
16	<u>Thurs Mar 19</u>	Lung II	Stitzel	Stitzel/Scott
17	Tues Mar 24	Child (unconfirmed)	Stitzel	Pranikoff
18	<u>Thurs Mar 26</u>	Alcohol metabolism	Gabler	Gabler
19	Tues Mar 31	CIREN injury mechanisms	Stitzel	Stitzel
20	<u>Thurs April 2</u>	CIREN meeting (students attend at WFU)	Stitzel	CIREN
21	Tues April 7	Exam II	Duma	Duma
22	<u>Thurs April 9</u>	Abdomen overview	Hardy	Hardy
23	Tues April 14	Spleen	Stitzel	Stitzel
24	<u>Thurs April 16</u>	Spleen	Stitzel	Stitzel
25	Tues April 21	Martial Arts Injury Mechanisms	Sparks	Sparks/Smitha
26	<u>Thurs April 23</u>	Liver	Sparks	Sparks
27	Tues April 28	Pregnant	Duma	Duma
28	<u>Thurs April 30</u>	Elderly	Stitzel	Stitzel
29	May 5	<i>Final course review</i>	Duma	
	May 13	FINAL EXAM 1:05pm to 3:05pm Perhaps we can move it up (if all agree)		