ANG 4930

Spring 2016

Advanced Human Osteology

TIME: T period 3, R periods 3-4

PLACE: TUR 1208J

INSTRUCTOR: David Daegling, B376 Turlington Hall (352) 294-7603 <u>daegling@ufl.edu</u> Office Hours: M 12:30-1:30 PM; R 1:00 – 3:00.

COURSE OBJECTIVES: This course provides a foundation in human skeletal biology. Bone biomechanics, adaptation, physiology and their applications in forensic, bioarchaeological, paleontological and comparative contexts are emphasized.

PREREQUISITE: Grade of B or better in ANT 4525, Human Osteology and Osteometry

TEXTBOOK: Burr DB, Allen MR (2013) *Basic and Applied Bone Biology*. Elsevier (required). White TD, Folkens PA (2005) *The Human Bone Manual*. Academic (recommended).

STUDENT LEARNING OUTCOMES: Successful completion of the course will provide students with methodological and analytical foundations in the following:

- Epigenetic influences on skeletal growth and development
- Biological profile from skeletal remains
- Structural and material properties of bone
- Biomechanics of the skeleton
- Bone metabolic activity
- Skeletal adaptation

COURSE REQUIREMENTS: Emphasis on in-class participatory activities compels regular attendance. The grading criteria for the course include individual and group quizzes, participation in group problem-solving activities, and peer evaluation. Weighting of criteria will be determined in Week 1 and posted.

OTHER POLICIES: Cell phones and pagers must be off during class. Academic dishonesty in any form will not be tolerated and is subject to university policy (University of Florida Rules - 6C1-4 Student Affairs), which includes provisions for expulsion from the university. Students requesting classroom accommodation must first register with the Dean of Students Office (DSO), which provides documentation to the Instructor when student has requested accommodation. Students experiencing personal problems that are interfering with their academic performance are encouraged to contact the University Counseling Center (301 Peabody Hall, 392-1575), Student Mental Health (Student Health Care Center, 392-1171), or Sexual Assault Recovery Services (Student Health Care Center, 392-1161).

COURSE ADMINISTRATION: Syllabi, assignments, datasets, resources, and readings will be distributed through the CANVAS platform in e-learning: <u>http://lss.at.ufl.edu/</u>.

COURSE SCHEDULE

Week		Торіс	Reading
1	(1/5) (1/7)	Course structure and expectations ISSUE: Identification algorithm	White (review) Christensen 1992
2	(1/12) (1/14)	Bone morphology and organization ISSUE: Minimum number of individuals	Chapter 1 Marean et al. 2001
3	(1/19) (1/21)	Bone cells ISSUE: Aging the skeleton	Chapter 2 Osborne et al. 2004 Lovejoy et al. 1985
4	(1/28) (1/30)	Local regulation of bone cells ISSUE: Sexing the elbow	Chapter 3 Kothapalli et al. 2013 Tise et al. 2013
5	(2/2) (2/4)	Modeling and Remodeling ISSUE: Secondary bone function	Chapter 4 Bouvier & Hylander 1996 Martin 2002
6	(2/9) (2/11)	Imaging and Histomorphometry ISSUE: Mineral variation	Chapters 5, 7 Rouch & Schoenau 2001
7	(2/16) (2/18)	Tissue Mechanics ISSUE: Bone strength	Chapter 6 Trinkaus 1997 Stock 2006
8	(2/23) (2/25)	Skeletal Genetics ISSUE: Ancestry	Chapter 8 Sauer 1992 Konigsberg et al 2009
9	(3/8) (3/10)	Skeletal Adaptation ISSUE: Dynamic strain similarity	Chapter 9 Rubin & Lanyon 1984 Frost 1992
10	(3/15) (3/17)	Fracture Healing ISSUE: Fixation	Chapter 10 Kenwright et al. 1991

11	(3/22)	Craniofacial Biology	Chapter 11
	(3/25)	ISSUE: Supraorbital torus	Russell 1985
12	(3/29)	Growth and Development	Chapter 12
	(3/31)	ISSUE: The osteological paradox	Wright & Yoder 2003
13	(4/5)	Bone as an Endocrine Organ	Chapters 13, 15
	(4/7)	ISSUE: Exercise	Forwood & Burr 1993
14	(4/12)	Nutrition ISSUE: Drink your milk	Chapter 14 Eaton & Nelson 1991
15	(4/19)	Pathology and Treatments ISSUE: Osteoporosis	Chapters 16, 17 Frost 1997 Von Stengel et al. 2011