

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER:	BSC 2085C
COURSE TITLE:	Human Anatomy and Physiology I
PREREQUISITE(S):	None
COREQUISITE(S):	None
STUDENT ADVISING NOTES:	<u>Completion of all College Prep Requirements.</u> High School Chemistry or equivalent taken within the past five years or satisfactory performance on a chemistry competency test. High School Biology or the equivalent taken within the past five years or satisfactory performance on a biology competency test.
CREDIT HOURS:	4
CONTACT HOURS/WEEK:	5
CONTACT HOUR BREAKDOWN:	
Lecture:	3
Laboratory:	2
Other Lecture/Lab	
FACULTY WORKLOAD POINTS:	4.4
STANDARDIZED CLASS SIZE ALLOCATION:	24

CATALOG COURSE DESCRIPTION:

This course includes basic anatomical and directional terminology; fundamental concepts and principles of cell biology; histology; the integumentary, skeletal, muscular, and nervous systems; special senses; and the endocrine system. Within Anatomy and Physiology I, these topics may or may not be covered in the sequence listed.

All BSC 2085C students are required to take the standardized comprehensive final exam. The exam will count exactly 10% of each student's final course grade.

SUGGESTED TEXT(S):	<u>Human Anatomy and Physiology</u> , Marieb, Wesly/Benjamin Cummings, Latest Ed (currently 7 th).
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Special Package - ISBN 0321472268
Includes: A Brief Atlas of the Human Body
Interactive Physiology 9 system suite CD ROM
Get Ready For A&P Workbook

SUGGESTED TEXT(S): (Continued)

Anatomy & Physiology Place CD (also on website)
Anatomy & Physiology Place - Ebook with tutorial, quizzes,
reviews, Labs, etc. My A&P - Student's site - Includes
Anatomy & Physiology Place, grade book, etc.
Anatomy 360 CD (also on the website)

IMPLEMENTATION DATE:

Fall, 1994 (was APB 2190C prior to this)

REVIEW AND MODIFICATION DATE:

November 16, 1987
Fall Term, 2000
Summer Term, 2002 (20023)
Fall Term, 2002 (20031)
Fall Term 2006 (20071)
Fall Term 2007 (20081)
Fall Term, 2008 (20091) - Outline Review 2007

COURSE TOPICS	<u>CONTACT HOURS PER TOPIC</u>
I. Introduction to Human Anatomy and Physiology	2
A. Structural Levels of Organization	
B. Characteristics of Life	
C. Overview of Principal Systems and Functions	
D. Homeostasis and Disease	
1. Positive feedback mechanisms	
2. Negative feedback mechanisms	
E. Descriptive Terminology	
1. Directional terms	
2. Planes and sections	
3. Body Cavities	
F. Medical Imaging	
Chemistry and Cell Biology	5
G. Atoms, Molecules and Compounds	
1. Ionic Bonds	
2. Covalent bonds	
3. Hydrogen Bonds	
H. Chemical Reactions	
I. Hydrogen acids, Hydroxide Bases, and Neutral Salts	
J. Buffers and pH concept	
K. Macromolecules	
1. Carbohydrates	
2. Lipids	
3. Proteins	
4. Nucleic Acids	
L. Cell Organelles	
M. Membrane Structure	
N. Mechanisms of Movement of Materials Across Membrane	
1. Diffusion	
2. Osmosis	
3. Filtration	
4. Facilitated Diffusion	
5. Active Transport	
6. Bulk Transport	
O. Somatic Cell Division	
1. Mitosis	
2. Cytokinesis	
P. Gene Action and Polypeptide Synthesis	
Q. Cellular Respiration	
1. Anaerobic Respiration	
2. Aerobic Respiration	

COURSE TOPICS (CONTINUED)	<u>CONTACT HOURS PER TOPIC</u>
II. Histology	3
A. Microscopic Anatomy of Major Tissue Types	
1. Epithelium	
2. Connective	
3. Muscle	
4. Nervous	
B. Location, and Functional Roles of Tissues	
C. Membranes	
1. Mucous	
2. Serous	
3. Synovial	
III. Dermatology	3
A. Gross Anatomy and Microanatomy	
B. General Functions	
C. Accessory Structures	
D. Homeostasis	
1. Wound Healing	
2. Thermoregulation	
3. Selected Disorders of the Skin	
IV. Osteology and Arthrology	6
A. General Functions of Bone and the Skeletal System	
B. Long Bone	
1. Gross Anatomy	
2. Microscopic Anatomy	
C. Bone Development and Growth	
1. Intramembranous Ossification	
2. Endochondral Ossification	
D. Bone Homeostasis	
1. Remodeling	
2. Repair	
E. Names and External Features of Bones	
1. Processes that Form Joints	
2. Processes that Serve as Attachment Sites	
3. Cavities and Depressions	
F. Organization of the Skeleton	
1. Axial Skeleton	
a. Bones and Important External and Internal Features	
2. Appendicular Skeleton	
a. Bones and Important External Features	
G. Structure and Functions of Joints	

COURSE TOPICS (CONTINUED)

CONTACT HOURS
PER TOPIC

1. Gross Anatomy
2. Anatomical Classification of Joints
3. Functional Classification of Joints

V. Myology and Kinesiology 8

- A. General Functions of Muscles
- B. Comparison of Muscle Types
 1. Skeletal, Smooth, Cardiac
- C. Anatomy of a Skeletal Muscle
 1. Structural organization of Whole Muscle
 - a. Deep Fascia, Epimysium, Perimysium, Endomysium
 - b. Fascicle
 - c. Muscle fibers
 2. Microscopic Anatomy of Muscle Fiber
 - a. Sarcolemma, Sarcoplasm
 - b. Mitochondria, Nuclei, Sarcoplasmic Reticulum
 - c. Myofibrils, Thin Filaments, Thick Filaments, Titin Filaments
 - d. Sarcomere, A-band, I-band, Z-line, M line, H zone
- D. Physiology of Skeletal Muscle Contraction
 1. Energy Sources for Muscle Contraction
 2. Principles of Whole Muscle Contraction
 - a. Motor unit
 3. Types of Whole Muscle Contraction
 - a. Isometric Contraction
 - b. Isotonic Contraction
 4. Nomenclature of Skeletal Muscles
 5. Group Actions of Skeletal Muscles (Prime Movers, Antagonists, Synergists)
 6. Muscles of Facial Expression
 7. Muscles that Move the Head and Neck
 8. Muscles that Move the Backbone
 9. Muscles that Move the Shoulder Blade
 10. Muscles that Move the Rib Cage
 11. Muscles that Move the Abdomen
 12. Muscles that Move the Shoulder Joint
 13. Muscles that Move the Elbow
 14. Muscles that Move the Wrist and hand
 15. Muscles that Move the Hip Joint
 16. Muscles that Move the Knee Joint
 17. Muscles that Move the Ankle and Foot

VI. Nervous System 9

- A. Structural Organization of the Nervous System
- B. Histology of Nervous Tissue
 1. Neurons
 2. Glial Cells

COURSE TOPICS (Continued)

CONTACT HOURS
PER TOPIC

- C. Nerves, Tracts, Ganglia, and Nuclei
- D. Microanatomy of a Nerve
- E. Neuron Physiology
 - 1. Resting Membrane Potential
 - 2. Action Potential
 - 3. Graded Potential
 - 4. Continuous vs Saltatory Conduction
- F. Synapse
 - 1. Microanatomy
 - 2. Neurotransmitters & Enzymes
 - 3. Excitatory Postsynaptic Potential (EPSP)
 - 4. Inhibitory Postsynaptic Potential (IPSP)
- G. Neuronal Circuits
- H. Central Nervous System
 - 1. Meninges
 - 2. Cerebrospinal Fluid
 - 3. Spinal Cord
 - a. Gross and Microscopic Anatomy
 - b. Sensory and Motor Tracts
 - c. Spinal nerves
 - d. Reflex Arcs and Reflexes
 - 4. BrainGross and Microscopic Anatomy
 - a. Functional areas of the Cerebrum
 - b. Brain Lateralization
 - c. Brainstem Structure and Function
 - d. Electroencephalography
 - e. Cranial Nerves Structure and Functions
 - f. Selected Disorders of the Central Nervous System
 - 5. Peripheral Nervous System
 - a. Cranial Nerves
 - Distribution
 - Function
 - b. Spinal Nerves
 - Distribution
 - Function
 - c. Dermatomes
- I. Autonomic Nervous System
 - 1. Autonomic Motor Neurons
 - a. Preganglionic Neurons
 - b. Postganglionic Neurons
 - c. Autonomic Ganglia
 - d. Autonomic Fibers
 - 1. Cholinergic
 - 2. Adrenergic
 - e. Autonomic Receptors

COURSE TOPICS (Continued)

CONTACT HOURS
PER TOPIC

1. Cholinergic
2. Adrenergic
- f. Sympathetic Division
 1. Anatomy
 2. Sympathetic Responses
- g. Parasympathetic Division
 1. Anatomy
 2. Parasympathetic Responses
- h. Autonomic Reflexes
- i. Drugs that affect the ANS
 1. Agonist (Mimetic) Drugs
 2. Antagonist (Blocking) Drugs

VII. Somatic Sensations and Special Senses

3

- A. The Process of Sensation
- B. Types of Sensory Receptors
- C. Somatic Sensations
 1. Tactile Sensations
 2. Thermal Sensations
 3. Pain Sensations
 4. Proprioceptive Sensations
- D. Somatic Sensory Pathways
 1. Posterior Column-Medial Lemniscus
 2. Spinothalamic Pathways & Somatosensory Area
 3. Spinocerebellar Pathways
- E. Somatic Motor Pathways
 1. Pyramidal (Direct) Pathways & Somatomotor Area
 2. Extrapyramidal (Indirect) Pathways
- F. Learning and Memory
- G. Wakefulness and Sleep
 1. Reticular Activating System
- H. Integrative Functions of the Cerebellum
- I. Olfaction
 1. Anatomy of Olfactory Receptors
 2. Physiology of Olfaction
 3. Olfactory Pathway
- J. Gustation
 1. Anatomy of Gustatory Receptors
 2. Physiology of Taste
 3. Gustatory Pathway
- K. Vision
 1. Accessory Structures of the Eye
 2. Anatomy of the Eyeball
 3. Image Formation
 4. Physiology of Vision
 5. Visual Pathway

COURSE TOPICS (Continued)

CONTACT HOURS
PER TOPIC

- 6. Selected Disorders of the Eye
- L. Hearing and Equilibrium
 - 1. Anatomy of the Ear
 - 2. Physiology of Hearing
 - 3. Auditory Pathway
 - 4. Physiology of Equilibrium
 - 5. Equilibrium Pathways
 - 6. Selected Disorders of the Ear

VIII. Endocrine System

6

- A. Major Functions of the Endocrine System
- B. Hormones
 - 1. Circulating vs Local Hormones
 - 2. Classification based on Chemical Characteristics
 - 3. Classification based on Solubility
- C. Hormone Action
 - 1. Lipid-soluble hormones
 - 2. Water-soluble Hormones
- D. Role of Hormone Receptors
 - 1. Up-regulation
 - 2. Down-regulation
- E. Stimuli for Hormonal Secretion
 - 1. Environmental Factors
 - 2. Nerve Impulses
 - 3. Hormones
 - 4. Nonhormonal Chemicals
- F. Hormonal Interactions
 - 1. Synergistic Effects
 - 2. Antagonistic Effects
- G. Feedback Mechanisms Controlling Endocrine Glands
- H. Hypothalamus-Pituitary Gland Association
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - a. Hypothalamic Releasing and Inhibiting Hormones
 - b. Anterior Pituitary Hormones
 - c. Hormones Released by Posterior Pituitary
 - d. Selected Disorders
- I. Thyroid Gland
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- J. Parathyroid Glands
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - 3. Selected Disorders

COURSE TOPICS (Continued)

CONTACT HOURS
PER TOPIC

- K. Adrenal
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- L. Pancreas
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- M. Gonads
 - 1. Overview of their Anatomy and Physiology
 - 2. Hormones
 - 3. Selected disorders
- N. Pineal Gland
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- O. Thymus
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- P. Gastrointestinal Tract
 - 1. Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- Q. Kidneys
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- R. Heart
 - 1. Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- S. Adipose Tissue
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- T. Placenta
 - 1. Gross Anatomy and Microanatomy
 - 2. Hormones
 - 3. Selected Disorders
- U. Growth Factors
- V. Stress
 - 1. Stressors
 - 2. General Adaptation Syndrome

TOTAL LECTURE HOURS

45

COURSE TOPICS

IX. LABORATORY TOPICS—Faculty must select 30 hours of the possible 40 laboratory activities listed. Topics indicated with ** must be covered with a hands-on activity

A. Descriptive Terminology	2
B. Biological Chemistry	2
C. Cell Structure	2
D. Histology -Microscopic Anatomy of Major Tissue Types **Required hands-on lab activity	4
E. Dermatology	2
F. Osteology and Arthrology **Required hands-on lab activity	6
1. Structure of long bone	
2. Skeletal system	
3. Joints	
G. Myology and Kinesiology **Required hands-on lab activity	4
H. Nervous System **Required hands-on lab activity	4
I. Somatic Sensations and Special Senses **Required hands-on lab activity	4
J. Endocrine System	2
K. Exercises at the discretion of the instructor Lab Testing	2-8
Total Laboratory Hours	30



Course Prefix and Number: BSC 2085C	Semester Credit Hours: 4
Course Title: Human Anatomy and Physiology I	

Discipline Area for the Course:

<input type="checkbox"/> Communication	<input type="checkbox"/> Mathematics	<input type="checkbox"/> Social & Behavioral Sciences
<input type="checkbox"/> Humanities & Visual/Performing Arts	<input checked="" type="checkbox"/> Natural Sciences	<input type="checkbox"/> Other-Designated Option

INTELLECTUAL COMPETENCIES:

<input checked="" type="checkbox"/> Reading	<input checked="" type="checkbox"/> Speaking	<input checked="" type="checkbox"/> Critical Analysis	<input checked="" type="checkbox"/> Quantitative Skills	<input checked="" type="checkbox"/> Scientific Method of Inquiry
<input checked="" type="checkbox"/> Writing	<input checked="" type="checkbox"/> Listening	<input checked="" type="checkbox"/> Information Literacy	<input checked="" type="checkbox"/> Ethical Judgment	<input checked="" type="checkbox"/> Working Collaboratively

Learning Outcomes

Method Of Assessment

1	Explain and apply major concepts in human anatomy and physiology including cell biology, histology, the integumentary, skeletal, muscular and nervous systems, special senses and the endocrine glands.	Written tests, reports and/or use of equipment to demonstrate student competency in field. All BSC 2085C students are required to take the standardized comprehensive final exam. The exam will count exactly 10% of each student's final course grade.
2	Demonstrate knowledge of scientific method.	Formulate problem, make observations, derive and test hypothesis and make conclusions.
3	Communicate scientific ideas through oral or written assignments.	Students use analytical reasoning skills to solve problems on written tests and/or laboratory work.
4	Interpret scientific models such as formulas, graphs, tables and schematics, draw inferences from them and recognize their limitations.	Written reports of lab experiments and/or written tests demonstrate student competency in the application of scientific knowledge.
5	Demonstrate problem solving methods in situations that are encountered outside of the classroom.	Students use demonstrations, group discussions, written tests, laboratory reports, research projects and/or field experiences to illustrate competence in recognizing and evaluating various scientific processes.
6	Demonstrate proper laboratory technique including safety in the use and care of laboratory equipment and materials.	Results from laboratory work and experiments demonstrate student awareness of science and society.

Name of Person Completing This Form: Maria Ohler Date: 9-25-2007

Signature: _____ Date: _____



Course Prefix and Number: BSC 2085C	Semester Credit Hours: 4
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Course Title: Human Anatomy and Physiology I
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Discipline Area for the Course:		
<input type="checkbox"/> Communication	<input type="checkbox"/> Mathematics	<input type="checkbox"/> Social & Behavioral Sciences
<input type="checkbox"/> Humanities & Visual/Performing Arts	<input checked="" type="checkbox"/> Natural Sciences	<input type="checkbox"/> Other-Designated Option

INTELLECTUAL COMPETENCIES:					
<input checked="" type="checkbox"/> Reading	<input checked="" type="checkbox"/> Speaking	<input checked="" type="checkbox"/> Critical Analysis	<input checked="" type="checkbox"/> Quantitative Skills	<input checked="" type="checkbox"/> Scientific Method of Inquiry	
<input checked="" type="checkbox"/> Writing	<input checked="" type="checkbox"/> Listening	<input checked="" type="checkbox"/> Information Literacy	<input checked="" type="checkbox"/> Ethical Judgment	<input checked="" type="checkbox"/> Working Collaboratively	

KNOWLEDGE	Primary	Secondary	N/A	VALUE	Primary	Secondary	N/A
A. Global and Historical Knowledge & Understanding				Intellectual honesty	<input checked="" type="checkbox"/>		
• Comprehends a general knowledge of the nature, origins and contributions of major civilizations			<input checked="" type="checkbox"/>	Curiosity and openness to new ideas	<input checked="" type="checkbox"/>		
• Comprehends the workings and interrelations of personal, business and government economies			<input checked="" type="checkbox"/>	Recognition of one's own creative potential	<input checked="" type="checkbox"/>		
• Comprehends political, social and economic systems and their effects upon society			<input checked="" type="checkbox"/>	Acceptance of and respect for differences among people and cultures	<input checked="" type="checkbox"/>		
B. Cultural and Aesthetic Knowledge and Understanding							
• Comprehends the contributions of the arts and humanities to the human experience on a personal, national or global level			<input checked="" type="checkbox"/>	Civic Engagement		<input checked="" type="checkbox"/>	
• Comprehends the historical development of the arts and sciences			<input checked="" type="checkbox"/>	Lifelong Learning	<input checked="" type="checkbox"/>		
• Comprehends religious and cultural systems and their effects upon society			<input checked="" type="checkbox"/>				
C. Human Awareness and Understanding							
• Comprehends the dynamics of human behavior and the process of increasing self-awareness, growth and development	<input checked="" type="checkbox"/>						
• Comprehends the stages of human development and the dynamics of human relationships in diverse cultures		<input checked="" type="checkbox"/>					
• Comprehends the factors that promote physical, mental and social well-being	<input checked="" type="checkbox"/>						
D. Mathematics, Science and Technology							
• Comprehends the basic concepts and investigative processes of the natural sciences	<input checked="" type="checkbox"/>						
• Comprehends the breadth, significance and development of the mathematical sciences	<input checked="" type="checkbox"/>						
• Comprehends the ways science and technology have shaped and continue to reshape human cultures and the environment	<input checked="" type="checkbox"/>						

Name of Person Completing This Form: Maria Oehler Date: 9-5-2007

Signature: _____ Date: _____