JEFFERSON COLLEGE

COURSE SYLLABUS

PTA 105

Anatomy and Physiology II for Physical Therapists Assistants

4 Credit Hours

Prepared by:
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Elizabeth Check, Dean, Career and Technical Education
Dr. Mary Beth Ottinger, Division Chair
PTA105 Anatomy and Physiology II for Physical Therapist Assistants

I. CATALOGUE DESCRIPTION

A. Prerequisite: Anatomy and Physiology I for Health Occupations, or BIO211 with a grade of “C” or better. The Physical Therapist Assistant Program will require a grade of “B” or better in BIO211 or Anatomy and Physiology I for Health Occupations

B. Credit hour award: 4

C. Description: This course is a continuation of Anatomy and Physiology I for Health Occupations with emphasis on the sensory, integumentary, endocrine, circulatory, respiratory, lymphatic, digestive, and genitourinary systems. This course will also present additional information on metabolism, energy, fluid and electrolyte balance, and the acid-base balance within the body and how each works to maintain homeostasis. Laboratory time is required. (F,S,Su)

II. EXPECTED LEARNING OUTCOMES AND ASSESSMENT MEASURES
(Numbers in parentheses refer to CAPTE performance expectations)

<table>
<thead>
<tr>
<th>Expected Learning Outcomes</th>
<th>Assessment Measures</th>
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<tbody>
<tr>
<td>Describe the function of each organ system.</td>
<td>Classroom Discussion/Activity</td>
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<td>Quizzes</td>
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<td>Written assignments</td>
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<td>Summative Written Examinations</td>
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<td>Contrast the composition of tissues of the organs that make up the integumentary,</td>
<td>Summative Written Examinations</td>
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<td>endocrine, lymphatic, digestive, circulatory, respiratory, and genitourinary systems.</td>
<td>Quizzes</td>
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<td>Classroom Discussion/Activity</td>
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<td>Written assignments</td>
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<td>Demonstrate the ability to correlate gross anatomical for all systems with surface</td>
<td>Classroom Discussion/Activity</td>
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<td>anatomy landmarks.</td>
<td>Laboratory Exercises</td>
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<td>Describe the function of cells and cellular components of the integumentary, endocrine,</td>
<td>Summative Written Examinations</td>
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<td>digestive, lymphatic, circulatory, respiratory, and genitourinary system structures.</td>
<td>Quizzes</td>
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<td>Classroom Discussion/Activity</td>
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<td>Written assignments</td>
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<tr>
<td>Identify changes in the integumentary, endocrine, digestive, lymphatic,</td>
<td>Summative Written Examinations</td>
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<tr>
<td>circulatory, respiratory, and genitourinary systems across the lifespan.</td>
<td>Quizzes</td>
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<td>Classroom Discussion/Activity</td>
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<td>Written assignments</td>
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<tr>
<td>Explain how the circulatory and respiratory systems function together.</td>
<td>Classroom Discussion/Activity</td>
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<td>Written assignments</td>
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<td></td>
<td>Summative Written Examinations</td>
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### OUTLINE OF TOPICS

A. **The Special Senses**  
1. Sense of Smell  
2. Sense of Taste  
3. Vision  
4. Hearing  

B. **The Integumentary System**  
1. Epidermis  
2. Dermis  
3. Hypodermis  
4. Hair  
5. Glands  
   a. Sebaceous Glands  
   b. Sweat Glands  
6. Nails  
7. Repairing the Integument Following An Injury  
8. Pressure Ulcers  
9. Arterial Ulcers  
10. Vascular Ulcers  
11. Neuropathic Ulcers  

C. **The Endocrine System**  
1. Homeostasis  
2. Hormones  
3. Pituitary Gland  
4. Thyroid Glands  
5. Four Parathyroid Glands  
6. Adrenal Glands
7. Pancreas
8. Organs with Secondary Endocrine Functions
9. Role of Exercise in Diabetes

D. Blood
1. Plasma
2. Red Blood Cells
3. Blood Types
4. White Blood Cells
5. Platelets
6. Hemostasis

E. The Heart
1. Structure and Function
2. Conducting System
3. Cardiac Cycle
4. Cardiodynamics
   a. Cardiac Output
   b. Heart Rate
   c. Stroke Volume
5. Effects of Exercise on the Heart

F. Blood Vessels and Circulation
1. Arteries and Arterioles
2. Capillaries
3. Venules and Veins
4. Capillary Exchange
5. Cardiovascular Regulatory Mechanisms
6. Physiological Stress
7. Pulmonary and Systemic Circuits

G. The Lymphatic System and Immunity
1. Lymphatic Vessels and Lymphocytes
2. Lymphoid Tissues and Organs
3. Innate Defenses
4. Adaptive Defenses
5. T Cells
6. B Cells
7. Immunological Competence
   a. Immune Disorders
   b. Stress and the Immune Response

H. The Respiratory System
1. Upper Respiratory System
2. Larynx
3. Trachea and Primary Bronchi
4. The Lungs
5. Gaseous Exchange
6. Pulmonary Ventilation
7. Oxygen and Carbon Dioxide Transport
8. Control of Respiration
I. The Digestive System
   1. The Oral Cavity
   2. The Pharynx
   3. The Esophagus
   4. The Stomach
   5. The Small Intestine
   6. The Large Intestine
   7. Absorption and Use of Nutrients

J. Metabolism and Energy
   1. Carbohydrate Metabolism
   2. Lipid Metabolism
   3. Protein Catabolism
   4. Adequate Nutrition
   5. Metabolic Rate

K. The Urinary System
   1. Kidneys and Nephrons
   2. Glomerular Filtration Rate
   3. Antidiuretic Hormone and Aldosterone
   4. Urine

L. Fluid, Electrolyte, and Acid-Base Balance
   1. Regulation of Fluids and Electrolytes
   2. Hydrostatic and Osmotic Pressures
   3. Sodium, Potassium, Calcium, and Chloride Balance
   4. pH Control
   5. Respiratory Acidosis/Alkalosis
   6. Metabolic Acidosis/Alkalosis

M. The Reproductive System
   1. The Male Reproductive Tract
   2. The Accessory Glands
   3. Male Hormones
   4. Female Reproductive Organs
   5. The Mammary Glands
   6. Female Hormones

IV. METHOD(S) OF INSTRUCTION

   A. Lecture
   B. Textbook Readings
   C. Supplemenal Handouts
   D. Active Learning in the classroom setting
   E. Case Studies
   F. Hands-on interaction during laboratory portion of course in which the students use microscopes, handle bones, etc.

V. REQUIRED TEXTBOOK(S)
   A. Martini, F., Nath, J., & Bartholomew, E. (2012). Fundamentals of Anatomy and
B. Interactive Physiology (IP-10) CD-ROM (included with textbook)
C. Lab Manual: Integrate for Jefferson College

VI. REQUIRED MATERIALS

A. A computer with internet access and basic software
B. Course homepage available through Blackboard
C. Binder, paper, pens, pencils with erasers

VII. SUPPLEMENTAL REFERENCES

A. Class Handouts
B. Library Resources
   1. Supplemental texts
   2. Databases
   3. Periodicals
   4. Videos
C. Internet Resources
   1. On-line references
      a. anatomyarcade.com
      b. bbc.co.uk/science/humanbody/body

VIII. METHOD OF EVALUATION

A. Summative Classroom Written Examinations: 30%
B. Classroom Quizzes: 10%
C. Lab Examinations: 20%
D. Lab Quizzes: 10%
E. Classroom Written Assignments: 20%
F. Lab Written Assignments: 10%
G. Grading Scale:
   A=90-100%
   B=80-89.9%
   C=70-79.9%
   D=60-69.9%
   F=under 60%

IX. ADA STATEMENT

Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library: phone 636-797-3000, ext. 3169).
X. ACADEMIC HONESTY STATEMENT

All students are responsible for complying with campus policies as stated in the Student Handbook. Any student who cheats or plagiarizes will be subject to dismissal from their respective health occupations program and will be referred to the college for disciplinary action. (See College website, http://www.jeffco.edu/jeffco/index.php?option=com_weblinks&catid=26&Itemid=84)