CAPITAL COMMUNITY COLLEGE
COURSE OUTLINE
Anatomy and Physiology II

SECTION I

SUBJECT AREA & COURSE NUMBER: BIO* G-212
COURSE TITLE: *Anatomy and Physiology II*
COURSE CATALOGUE DESCRIPTION: Continuation of Biology 211. Includes consideration of basic genetics and human reproduction as well as details of organ systems directly related to metabolism and homeostasis. Formerly listed as BIO 209, not open to students who have successfully completed BIO 209.
LECTURE HOURS PER WEEK: 3 **CREDIT HOURS: 4**
LABORATORY HOURS PER WEEK: 3
PREREQUISITES: Anatomy and Physiology I (BIO* G-211) or permission of the Department Chair.

SECTION II

A. SCOPE:

The objective of this course is to continue the study of human physiology and anatomy begun in Biology* 211. This is accomplished through the study of normal human anatomy and of physiological processes. The organ systems studied are the endocrine, reproductive, cardiovascular, respiratory, digestive and urinary systems. Introductions to human embryology, immunity, and acid-base, fluid and electrolyte physiology are included.

B. REQUIRED WORK: Determined by the instructor as described in the course syllabus. Work may include written in-class quizzes and/or examinations, presentations to the class, in-class and out-of-class projects, written reports, portfolios, and homework assignments.

C. ATTENDANCE AND PARTICIPATION: Students are expected to attend all lectures and one laboratory section per week, arrive on time, take exams and submit assignments on scheduled dates, participate in the in-class learning process and complete all assignments. Specific policies of the instructor are included on the course syllabus.

D. METHODS OF INSTRUCTION: The methods of instruction are determined by each faculty member and may include lectures, demonstrations, audio-visual aids, laboratory exercises, computer assignments, and student presentations.

E. OBJECTIVES, OUTCOMES, ASSESSMENT

The following objectives and outcomes represent the Department=s core requirements for student achievement.

LEARNING OBJECTIVES	LEARNING OUTCOMES	ASSESSMENT METHODS
To demonstrate an understanding of:	**Student will:**	**As measured by:**
1) Endocrine System	a) Enumerate general features of the endocrine system b) Classify hormones c) Contrast various mechanisms of hormone action d) Explain the control of hormone secretion e) Distinguish between the consequences of hyposecretion and hypersecretion of selected hormones f) Describe the anatomy and functions of all major endocrine glands	Written in-class examinations and/or quizzes; presentations to the class; out-of-class projects; written reports; portfolios; class participation; homework assignments; laboratory projects.
2) The Cardiovascular System	a) Enumerate general functions and selected disorders of the cardiovascular system b) Name the composition and functions of blood plasma, and examine the cytology and functions of the formed elements c) Contrast the ABO and Rh blood types d) Identify the gross and microscopic aspects of the cardiovascular organs e) Explain the physiology of cardiac muscle contraction f) Explain the electrophysiology of the heart g) Describe the pattern of blood flow in the heart and the body h) Explain the production and control of blood pressure i) Describe the hepatic and renal portal systems j) Describe anatomical aspects of fetal circulation k) Identify the location and function of major arteries and veins in the pulmonary and systemic circuits	See methods listed for #1

3) Immunity and the Lymphatic System	a) Name the general functions and selected disorders of the lymphatic system b) Identify the location of major lymph organs/structures/vessels c) Describe the composition of lymph d) Describe the functions and structure of the thymus and spleen e) Explain nonspecific body defenses, including nonspecific cellular and chemical defenses f) Describe specific immunity, antigens, antibodies, lymphocytes g) Name the major types of immunoglobulins and their functions	See methods listed for #1
4) Respiratory System	a) List the general functions and selected disorders of the respiratory system b) Describe the gross and microscopic aspects of the respiratory system c) Explain the mechanics of breathing and describe the physiology of ventilation, gas exchange and transport d) Describe the air volumes and capacities e) Explain the neural control of breathing	See methods listed for #1
5) Digestive System	a) List the general functions and selected disorders of the digestive system b) Describe the gross and microscopic structure of digestive organs c) Explain the processes of digestion and absorption d) Describe the process of excretion e) Explain the regulation of digestion f) Relate aspects of nutrition and metabolism	See methods listed for #1

6) Urinary System	a) Enumerate the general functions and selected disorders of the urinary system b) Describe the structure, location and function of the urinary organs and the nephron c) Explain the processes involved in urine formation--including filtration, reabsorption and secretion d) Explain the regulation of urine volume and composition e) Describe the elimination of urine	See methods listed for #1
7) Water, Acid-base and Electrolyte Balance	a) Describe the nature and composition of the ICF and ECF b) Describe the movement of water between the fluid compartments c) Explain the consequences of a rise in plasma osmolarity and of a decline in plasma osmolarity d) Enumerate selected disorders of water and electrolyte balance e) Characterize the nature of electrolytes and the importance of selected electrolytes for normal body function, and describe mechanisms for the control of important electrolytes f) Relate normal pH in the body to its importance for homeostasis, and explain mechanisms of control of pH g) Enumerate selected disorders of acid-base balance	See methods listed for #1
8) Female and Male Reproductive Systems	a) Identify gross and microscopic aspects of the male and female reproductive organs and external genitalia b) Explain specific roles of the reproductive organs c) Explain hormonal control of reproductive functions d) Contrast spermatogenesis and oogenesis e) Describe various methods of birth control	See methods listed for #1

9) Fertilization and Prenatal Development	a) Define the terms embryo and fetus, describe embryonic and fetal development, and enumerate the major stages of embryonic development b) List examples of structures produced by each of the three germ layers c) Describe the processes of fertilization and implantation d) Enumerate the anatomy and functions of the placenta	See methods listed for #1
10) Fundamentals of Human Genetics	a) Explain Mendelian inheritance, including the concepts of gene, allele, genotype, phenotype, dominance, homozygote and heterozygote b) Describe the basic structure of DNA c) Explain the function of DNA and RNA, including the central dogma of gene expression d) Describe the inheritance of sex e) Enumerate selected genetic diseases, including autosomal dominant, autosomal recessive, sex-linked and chromosomal conditions.	See methods listed for #1

F. TEXTS AND MATERIALS: Text and laboratory manual selected by the Biology faculty of the Department of Science and Mathematics with content and presentation that support the Objectives and Outcomes given in Part E above.