NORTHERN ESSEX COMMUNITY COLLEGE
HAVERHILL, MASSACHUSETTS

COURSE OUTLINE
Summer 2008

COURSE: *BIO 122 E2 (CRN: 5041), Anatomy and Physiology I I*

INSTRUCTOR: *Professor Noel Ways*

TEXTS:

- *Anatomy & Physiology 11th edition, by Shier, Butler, and Lewis; WCB McGraw-Hill Pub. Co., © 2007*
- *The Anatomy Coloring Book, 3erd edition, by Kapit and Elson, Benjamin Cummings, © 2007*
- *Fetal Pig Dissection, a Laboratory Guide, 2erd edition, by Allen and Harper, John Wiley & Sons, Inc., © 2007*

ADDITIONAL SUPPLIES: Recorder, 1 1/2" Binder, Safety Glasses, Colored Pencils

LOCATION and TIME: *Lecture/Lab: Room: 160 / 356* *MW 6:00 – 10:15*

COLLEGE COURSE DESCRIPTION:

BIO122 Anatomy & Physiology II
3 credits; 2 lab hours
Proficiency Requirements: College Reading
Prerequisites: BIO121 Anatomy & Physiology I or by permission of instructor
Electives: Satisfies Liberal Arts, Science, Free,
Description: A continuation of BIO121 Anatomy & Physiology I. Systems covered are circulatory, endocrine, reproductive, urinary, digestive and respiratory

ABOUT A SUMMER COURSE IN HUMAN ANATOMY AND PHYSIOLOGY:

Anatomy and Physiology is designed for a typical semester, not a summer session. Therefore, students opting to take this course during the summer must understand that this unabridged course is accelerated; and that no part of the curricula is deleted. With this in mind, substantial study time must be budgeted on a daily basis toward the mastery of the material.

INSTRUCTIONAL OBJECTIVES:

This course is given to provide a necessary background for students who will pursue a career in the medical and paramedical curricula or other related fields. It also provides answers to those keenly interested in the human body both in form and function. All topics discussed will provide an initial detailed description of anatomical considerations followed by essential physiological processes involved. Throughout this treatment, there will also be an aim to integrate the systems relative to their homeostatic functions. With these thoughts in mind, the following objectives will be covered:

1. *Students will be able to identify essential components of the blood and their respective functions. The student will be able to explain the general process by which blood cells are produced and the control mechanisms regulating these processes. The student will demonstrate an understanding of blood clotting, and it's relationship to the fighting of infection. The student will also be able to explain the mechanisms of gas transport by red blood cells.*
2. *The student will be able to identify the name and function of all essential anatomy as it relates to the cardiac cycle. This will be followed by a thorough examination of the cardiac cycle for which the student will demonstrate, in writing, his/her comprehension of this important topic. Finally, the regulatory mechanisms that control cardiac output will be identified.*
3. *The student will then be expected to demonstrate a broad understanding of the anatomical and physiological characteristics of the blood vessels; and how these vessels differ relative to their location to the heart and critical organs. The students will also identify major arteries and veins of the human body, and demonstrate a keen understanding of the hepatic portal system. Finally, the physiological mechanisms of fluid exchange and blood pressure will be examined.*
4. *The student will identify the various functions of the lymphatic system as they relate to the organs found in this system. An understanding of the importance of the lymphatic system relative to immune function will be examined and demonstrated.*
5. *The students will be able to explain the essential components of both non-specific and specific host immune responses. This will include the demonstration of interferon and the complement system. Finally, the student will be expected to explain, in essay form, the full functioning of both cellular and humeral immunity.*
6. *The student will be able to identify the name and functions of all major components of the respiratory system. Critical physiological mechanisms relating to gas transport and exchange will likewise be examined. The student will also demonstrate an understanding of the anatomy of the larynx as well as it's function.*

7. *The next major topic is the digestive system. Here, the student will be able to sequentially follow the alimentary canal and discuss the various anatomical and physiological modifications to the overall digestive process. The function of accessory organs such as gall bladder, liver, pancreas, salivary glands, as well as human dentition and tooth anatomy will be examined; and the student will be expected to demonstrate his/her competency both in writing and by illustration. The student will also demonstrate in writing lipid transport and regulation.*
8. *The urinary system and renal function will follow. Here the student will be able to identify all major anatomical parts of this system as well as it's functioning unit, the nephron. Following this, the student will be presented with his/her most challenging component of the course: a detailed understanding of nephron physiology expressed in essay form.*
9. *Discussion of the human reproductive systems will aim at providing essential anatomical and physiological characteristics of the sexes. The student will also be asked to illustrate both male and female hormonal regulation. Finally, the unique adaptations of the female body to the carry, support, and nurture a fetus/infant will be discussed.*
10. *The last lecture of the semester will cover the endocrine system but also serve as a synthesis of homeostatic themes presented throughout the course. In this respect, the student can anticipate some review of control mechanisms previously presented, but in a more focused context of the endocrine system. As such, the student will become familiar with the anatomy and location of endocrine organs and their specific roles in the maintenance of homeostasis. Several control systems will be presented and the student will illustrate several of these in illustration form.*

TEACHING PROCEDURES:

The lecture sequence will be presented in a systematic fashion with accompanying overheads to facilitate organization and understanding of the lecture material. Significant emphasis will be placed upon physiological processes where appropriate with an aim toward an appreciation for the integration of various physiological processes.

The laboratory is designed to give the students a "hands on" appreciation for the anatomical considerations being discussed in lecture and to familiarize the student with some of the more basic physiological considerations as they relate to gross anatomy. The laboratory period will also be used for lecture purposes.

ATTENDANCE POLICY:

Attendance of every lecture and every lab is strongly encouraged, as material will be presented that may not be otherwise covered in the text. A student will not be penalized for failure to attend a class, however, it should be noted that lecture exams and laboratory practicals will have strong representation from class instruction. A name call will be taken for registrar tracking purposes.

GRADING POLICY

Five non-comprehensive lecture exams are given. Two laboratory practical exams will be administered; the grades of which will be combined and be equivalent to one lecture exam. A semi-cumulative final exam will be administered at the end of the semester and equivalent to one lecture exam; the topic for which will be provided toward the end of the semester. Grade assignment is based upon an absolute scale, see chart below. To summarize:

Five Lecture Exams (Drop lowest grade)	=	*500 points*
Two Laboratory Practicals (50 points each)	=	*100 points*
Final Exam	=	*100 points*
Drop lowest Grade	=	*-100 points*
		600 points

Grading Policy:

A	*4.0*	*93-100*	*B-*	*2.7*	*80-82*	*D+*	*1.3*	*67-69*
A-	*3.7*	*90-92*	*C+*	*2.3*	*77-79*	*D*	*1.0*	*60-66*
B+	*3.3*	*87-89*	*C*	*2.0*	*73-76*	*F*	*0.0*	*0-59*
B	*3.0*	*83-86*	*C-*	*1.7*	*70-72*			

NOTES

- ***Safety Issues*** *If you have a known disease condition or are pregnant, you must obtain written permission from your physician to participate in lab where chemicals, fixatives, or preservatives are used. A "Material Safety Data Sheet" (MSDS) for each chemical used will be provided to you for submission to your physician. No one is permitted in the lab that has a known medical condition and where chemical substances are present where a physician has not granted permission.*
- ***The Syllabus*** *is to be filed by the student as a record of course content for future application purposes.*

- ***Recording of Lectures*** *Recording of the lectures is always permitted. The use of lap-top computers or word processors is encouraged if it helps the student integrate the material. Feel free to use a digital camera to photograph laboratory dissections, models, or any other supportive tool. You may videotape the lecture if you like. In short, you may do anything you deem necessary to master the subject matter as long as it is legal, ethical, and non-disruptive.*
- ***Attendance*** *of every lecture and every lab is strongly encouraged, as material will be presented that may not be otherwise covered in the text.*
- ***Tardiness*** *Please be on time. Tardiness is disruptive to both the students and the instructor. If you are late, please make sure that you are marked down on the attendance sheet before you leave.*
- ***Cellular Phones*** *Unless you anticipate an emergency call, please turn your phones off.*
- ***Alternative Textbook*** *If the student chooses to use an alternative textbook, or an edition other than the one required for this course, it is the responsibility of the student to obtain information that is either not covered or otherwise not approached in similar manner as in the required text, as deemed necessary by the student.*
- ***Textbook Usage*** *The role of the textbook is to be a supportive tool to the lectures. The student is not expected to memorize the entire textbook, but to use it to reinforce concepts and material presented during lecture.*
- ***Web Site*** *The web site associated for this course can be found by doing a search on you browser for your instructor's name, or typing in the following address: http://faculty.necc.mass.edu/nways/index.html*
  Once the site is accessed, select your course and there you will find your lecture outlines, handouts, and other support material. There is also an email button for correspondence with your instructor.
- ***Lecture Outlines and Supplemental Materials*** *are to be found on the internet. Should you have difficulty downloading any of the material at home, then you are encouraged to do this task at the school. All materials should be downloaded and organized in a three ring binder by the third week of classes.*
- ***Computer Lab Access*** *may require a current student ID.*
- ***The Schedule*** *below is a tentative but probable schedule of topics and dates. The schedule will be modified according to the progress of the lectures. The exam dates are target dates and will represent only material actually covered in class. Specifics regarding content will be given as the exam date approaches.*
- ***Exam Dates*** *Please note exam dates on the schedule below.*
- ***Exam Filing*** *All exams are returned to the instructor and filed after being handed back for review.*

- ***Make-up Exams*** *are to be avoided! If a make-up exam is needed, fill out a make-up petition form (found on web) and provide requested documentation. If a doctor's note is submitted, then a make-up exam is permitted. If a doctor's note is not submitted, a penalty is applied at the discretion of the instructor, and the instructor reserves the right to refuse the make-up. If there is to be a make-up, this task must be accomplished as soon as the student returns to school in good health, and within 5 school days. Lab practicals are very difficult to make up. Generally, if you miss a lab practical, this will be the exam grade you drop.*
- ***Exam Grades*** *are not given over the internet.*
- ***Final Grade*** *Your final course grade is typically determined the day of the final exam. Once the grades are submitted, confirm your grade with the college, and contact me if there are any issues. After four weeks of the grades being submitted, exams are recycled, and grades are final.*
- ***Tutoring*** *The college provides free tutoring services during Fall and Spring semesters. Contact the academic support center for the days and times. Tutoring is a free service of the college and designed to assist students who desire to excel in their mastery of the material as well as those struggling.*
- ***Identification*** *of all texts, recorders, and lab manuals is important. Please put you name and phone number on all personal belongings. If you leave something behind, you may be contacted as to where to pick it up.*

- ***Unscheduled School Cancellations*** *Should class be cancelled, the student is expected to master the material that is scheduled for that day on the downloadable outline. Should additional instructions be necessary, they can be found on the web site, under "announcements". During the subsequent class period, some topics may be reviewed, but responsibility for mastery of the material is upon the student.*
- ***Contact Information*** *See email address for contact link. When emailing, always identify yourself and the class that you are in. Always have the subject line appropriately filled in. I will not open mail that is not properly identified.*
- ***Recommendations*** *Should you seek a letter of recommendation to future programs, please provide the instructor with appropriate information and deadlines that you are facing and a stamped and addressed envelope. Finally, to assure that your application is complete, please contact the school after a reasonable period of time to assure their having received the letter. Contact me if there are any problems.*

Laboratory

- ***Clothing in Lab*** *Students are advised to never wear valuable clothing to lab as laboratory procedures may result in permanent damage to clothing.*
- ***Safety Eyewear*** *must be used during dissection exercises. Acceptable eyewear must have a rating of "Z87.1".*
- ***Eating*** *during laboratory time is prohibited.*
- ***Children*** *Due to safety concerns, children are never permitted in the lab.*

Summer 2008 SCHEDULE

Day:	*LECTURE*	
June 16	*Cardiovascular System: The Blood*	*Ch 14*
June 18	*Cardiovascular System: The Heart*	*Ch 15*
June 23	*Cardiovascular System: Vessels and Routes* ***(Exam)***	*Ch 15*
June 25	*The Lymphatic System and Non-specific Host Immunity*	*Ch 16*
June 30	*Specific Host Immunity* ***Lab Practical***	*Ch 16*
July 2	*The Respiratory System* ***(Exam)***	*Ch 19*
July 7	*The Respiratory System*	*Ch 19*
July 9	*The Digestive System*	*Ch 17*
July 14	*Digestive System* ***(Exam)***	*Ch 17*
July 16	*The Urinary System*	*Ch 20*
July 21	*The Urinary System*	*Ch 20*
July 23	*Reproductive Systems* ***Lab Practical***	*Ch 22*
July 28	*Endocrine System* ***(Exam)***	*Ch 13*
July 30	*Endocrine System*	*Ch 13*
August 4	***(Exam) and Review***	*--*
August 6	***Final Exam***	