

ANATOMY & PHYSIOLOGY II
Dr. William Hanna

BIOL202-03
Spring 2010

Lecture times: Tues. and Thurs.; 11:00-12:15 p.m. Room S-535 (Brockton)

Laboratory time: Wed. 1:00-2:50 p.m. Room S-546 (Brockton)

Office hours: Mon. and Wed. 9:00-10:00 a.m.
Tues. and Thurs. 10:00-11:00 a.m., or by appointment

Contact info: e-mail: massasoit.bio@mac.com
phone: (508) 588-9100 ext. 1626 (E-mail is strongly preferred.)
office: S-220 (in the Science building; Brockton campus)

Course websites: <http://www.massasoit-bio.net/courses/> (course content)
<http://webct6.massasoit.mass.edu> (Blackboard Campus Edition 8; a.k.a. WebCT)

Course description:

This is the second part of a two-semester course that presents in a comprehensive manner the structure and function of the human body. Topics include the cardiovascular, respiratory, digestive, urinary, endocrine, and reproductive systems. A dissection component of the laboratory work is required for successful completion of the course. This course is designed for students in the health programs. Lecture: 3 hours; Laboratory: 2 hours

Prerequisites:

Grade of C- or better in Biological Principles I (BIOL121) or successful performance on departmental challenge exam, and Preparing for College Reading II (ENGL092), Introductory Writing (ENGL099), and Fundamentals of Mathematics (MATH010), or waiver by placement testing results, and a grade of C- or better in Anatomy and Physiology I (BIOL201) or Department Approval. Anatomy and Physiology I (BIOL201) must be taken before Anatomy and Physiology II (BIOL202).

Both the lecture and laboratory components of this course are considerably more challenging than either Biological Principles I or Anatomy & Physiology I. Furthermore, it is expected that you have remained familiar with many of the topics covered in both courses, such as atomic and molecular structure, properties of macromolecules, eukaryotic cell structure and function, plasma membrane dynamics, energy transformations, tissue structure, control of homeostasis, smooth muscle function, and the autonomic nervous system. These topics will be covered in Anatomy and Physiology II with little or no introduction; you are expected to rely on your past experience with them.

Who should be taking this course?

This course is intended for those students that are enrolled or intending to enroll in Massasoit's Allied Health program, an exercise physiology program, or a program affiliated with another health-related field. Students who plan on transferring to a four-year institution should be aware that this class may not fulfill requirements for a biology major at another school and should check with the school at which they are interested in applying.

This class is **NOT** intended for students wishing to complete their Massasoit requirement for either a lab science or a science elective. Such students are welcome to take this class (provided they meet the prerequisites), but will find that the material and out-of-class work is significantly more advanced than their previous science courses.

Course materials (required; listed in order of importance):

- 1. Textbook:** Elaine Marieb & Katya Hoehn, *Human Anatomy and Physiology* (8th edition). Pearson/Benjamin Cummings. ISBN 9780805395914.

A new copy of the textbook includes many extras for free, such as access to the textbook website, InterActive Physiology, and an anatomy atlas (see accompanying handout). Considering this book is used for two semesters, this is a good deal. **New textbook = Cheaper in the long run.**

2. Bound notebook

This will be used as part of an ongoing lab notebook project. The best type of bound notebook is an artist's sketch book that can usually be found in the clearance section at places like Borders or Barnes and Noble, often for less than \$5.00. Otherwise, a standard composition book (black and white cover, found at any supermarket, convenience store or office supply store) will be acceptable.

If you began a notebook in A&P1, please feel free to continue using it for A&P2.

- 4. Working e-mail account** (your Massasoit-assigned account is fine; so are Gmail, Yahoo!, etc.)

- 5. Lab Manual:** Elaine Marieb. *Laboratory Manual for Human Anatomy & Physiology – Cat Version* (9th edition update). Pearson/Benjamin Cummings. ISBN 080537258X. (A used copy of the Lab Manual is fine.)

The Massasoit Bookstore stocks a bundle that includes new copies of both the textbook and lab manual, along with all of their free extras (bundle ISBN 9780321651822). In the past, the bundle has been *slightly* cheaper than purchasing new copies of both the textbook and the lab manual separately.

Additional course materials (not required, but suggested):

- 1. InterActive Physiology** CD-ROM that comes packaged with textbook. This is an invaluable resource when covering complicated physiology topics.
- 2. Histology Atlas:** Dennis Strete, *A Color Atlas of Histology* (1st edition). HarperCollins. ISBN 9780673991904
- This isn't required, but many students in both A&P1 and A&P2 have told me how helpful it is. You'll get a lot of use out of it.
- 3. Colored pencils:** For your lab notebook.

Lecture sessions:

The lecture portion of the class is taught using a document camera, the board, computer projection, and other audiovisual aids. There may be some class discussion, depending on the size of the class. There will be opportunities for extended discussion and questions outside of class and in the laboratory. I supplement the lectures with a lecture outline, copies of all relevant figures, and an extensive study guide that describes the material for which you are responsible. These supplemental materials are available on the course website.

Your comprehension of the lecture material will be evaluated with four exams given throughout the course of the semester. You should use the supplemental materials and System Assignments provided as study guides for the lecture exams. The dates of these exams are provided on the attached Lecture Schedule. In the event of a class cancellation, the exam will be given at the next lecture session.

Laboratory sessions:

The laboratory component of the course has been designed to provide students with the opportunity to study the organization of the human body from the cellular level to the organ and organ system levels. There are two overall goals for the lab portion of this course. First, it will serve as your primary opportunity to learn the relevant anatomical structures and organization of the human body. This is accomplished primarily through rote memorization of items on models, dissections, and histological preparations. Second, it will hone your observational and experimental skills. Observational skills will be developed mostly through rigorous microscope work. You are expected to bring microscope experience with you to this class from your previous science courses. Students will also investigate various physiological responses utilizing both mechanical and electronic laboratory equipment. These exercises should result in the development of new laboratory skills and a clearer understanding of the scientific method. The laboratory exercises have been selected to illustrate and enhance the theoretical material presented in the lectures.

For each lab session, you will receive a handout of Objectives which outline what you are expected to accomplish during the assigned lab time and how you should focus your time before the next lab session.

System Assignments and related course work:

For each section of lecture material, you will receive a packet of questions called a System Assignment that you will complete and submit for a grade. The purpose of the System Assignment is to ensure that you are working diligently to keep up with the material and to give you practice both researching answers and answering questions specifically and succinctly. These are the types of questions you will see on lecture exams and/or lab exams. System Assignments will generally be due in class the day after we finish the lecture material for that section. These due dates will be announced in class and it is **your** responsibility to adhere to them.

Some laboratory activities may have an associated handout that will be due at the end of the lab session. You may not turn in the laboratory handouts if you have not attended the lab session.

Late assignments:

Late assignments will not be accepted. If you are absent on the day an assignment is due, you must turn it in on your next appearance in lecture or lab, unless you've made an arrangement with me **previous to your return**.

Grading:**Your
grade****Total #
points**

System Assignments (330 pts)		
Endocrine System		40
Cardiovascular System		80
Blood and Immunity		40
Respiratory System		50
Digestive System		40
Urinary System		40
Reproductive Systems		40
Lab Assignments (240 pts)		
Histology Notebook (due at Lab Exam 2, no exceptions!)		160
Cardiovascular Physiology Lab Report (Lab 14)		15
Blood Pressure Concept Map (Lab 16)		15
Hematology Lab Report (Lab 17)		15
ELISA Lab Report (Lab 18)		15
PhysioEx Digestive Physiology Lab Report (Lab 21)		20
Lecture Exams (750 pts total)		
Exam 1		250
Exam 2		250
Exam 3		250
Lab Exams (500 pts total)		
Lab Exam 1		250
Lab Exam 2		250
Online Quizzes (only accepted through CE8; count towards a maximum of 140 extra credit points)		
Quiz 1: Endocrine System		
Quiz 2: The Heart		
Quiz 3: Blood Vessels		
Quiz 4: Cardiovascular Physiology		
Quiz 5: Hematology		
Quiz 6: Immunity/Lymphatic System		
Quiz 7: Respiratory Anatomy		
Quiz 8: Respiratory Physiology		
Quiz 9: Digestive Anatomy		
Quiz 10: Digestive Physiology/Metabolism		
Quiz 11: Urinary System		
Quiz 12: Sex Determination/Reproductive Systems		
Final Exam		400

Your total	Total points
	2220

A Above 2052
 A- 1987-2052
 B+ 1921-1986
 B 1832-1920

B- 1765-1831
 C+ 1699-1764
 C 1610-1698
 C- 1543-1609

D+ 1477-1542
 D 1388-1476
 D- 1321-1387
 F Below 1320

Your final grade in this course is a culmination of the work you complete throughout the semester. Final grades are non-negotiable and no extra credit assignments are accepted in the event you are not happy with your grade.

Attendance:

Your attendance is expected at all class meetings. There are **no make-up lecture exams**. Your grade on your Final Exam will be substituted for one (1) missed lecture exam. If a serious illness or family emergency prevents you from taking a **lab** exam, please notify me **on or before** the day of the exam if possible, and documented proof of the reason for the absence must be presented if requested when you return to class. At that time, the problem will be dealt with on an individual basis. Failure to comply with these procedures will result in a grade of 0 for the missed lab exam.

Time to time throughout the semester, I am asked by the Registrar to provide a list of students who have stopped participating in the course. Non-participating students may be withdrawn from the course and may be billed for repayment of financial aid.

Academic integrity (from the College catalog):

Students are responsible for maintaining the highest standards of academic honesty and integrity in this course. Violations of academic honesty will usually fall in one of two categories: cheating or plagiarism. Cheating includes, for example, copying or buying the work of others; hiring or persuading others to do work under a false name; concealing notes or other helpful materials during an exam; communicating with your classmates during an exam. Plagiarism is the use of another person's work or ideas as one's own without giving appropriate credit. In short, plagiarism is intellectual theft and is, therefore, taken seriously; consequently, using the ideas or language of others in an oral, written, technical, or artistic work must be properly acknowledged and documented. Students are responsible for understanding what constitutes plagiarism in their classes and should note that these offenses are often very easy for the instructor to catch. In this class, the penalty for cheating or plagiarism will be a grade of zero (0) for the work in question and possibly a failing grade for the course.

Please note that copying either text or drawings out of textbooks, course materials and websites is also prohibited. All work conducted in this course is to be yours and yours only!

Safety notes:

This course includes some dissection of preserved materials. Dissections in Anatomy and Physiology I include the sheep brain and cow eye. While we try to order materials in the safest preservatives available, it is not advisable for pregnant women to be present in the lab during dissections. **If you are pregnant or become pregnant during the course, please notify the instructor immediately.**

Students with disabilities:

Students with disabilities who believe that they may need accommodations in the classroom are encouraged to contact a disability counselor as soon as possible. Students at the Brockton Campus with learning disabilities should contact Andrea Henry (ext. 1805). Students with physical disabilities at the Brockton Campus should contact Mary Berg (ext. 1425). All students at the Canton Campus should contact Mary Berg (ext. 2132).

Course outcomes:

By the end of this course, you should be able to:

- Use the general steps of the scientific method to form hypotheses, collect and evaluate data, and draw conclusions, in order to learn to distinguish between science and pseudoscience, and to evaluate scientific information in both professional journals and the popular press.
- Use anatomical vocabulary correctly in order to be able to read and understand the text and laboratory instructions, and communicate effectively in a professional setting.
- Observe and describe differences in basic tissue types in order to be able to predict tissue and organ function based on structure.
- List the eleven organ systems, the organs they include, and their basic function, in order to carry out a systematic (as opposed to regional) study of the human body.
- Apply the basic principles of biology to the functions of cells and the plasma membrane in the human body in order to be able to predict the nature of processes involving membrane transport, receptors, surface area and energy, thus learning from understanding rather than memorization.
- Relate structure to the function of cells, tissues, and selected organs in order to demonstrate an understanding of the physiology of the integumentary, skeletal, muscular, and nervous systems.
- Describe the homeostatic condition and control systems for important variables in order to understand the nature of the "normal" or "healthy" condition. Describe the results of homeostatic imbalance of the same important variables in order to relate changes to the underlying causes of disease.
- Present and interpret data from charts and graphs in order to develop skills in using charts and graphs to convey information, to be able to read and understand professional journals and to understand data used in the workplace and presented at meetings and conferences.
- Communicate accurately and clearly both in writing and orally in order to educate patients (for students entering allied health fields) and communicate with professional colleagues.
- Work safely in the laboratory and follow simple laboratory protocols in order to work cooperatively to complete laboratory exercises and conduct experiments using the scientific method
- Use appropriate study skills to ensure success in the course
- To strengthen core competencies (including critical thinking, technology skills, oral communications, quantitative skills, reading and writing) in order to increase success in this and other courses and in the workplace.

Tentative Lecture and Lab Schedule

Week of	Lecture Topic (Tues/Thurs)	Lab Topic (Wed)
January 24	Endocrine System	Lecture: Endocrine Anatomy Lab 12: Endocrine Anatomy
Last day to add/drop without a grade: January 30		
January 31	Cardiovascular System: The Heart	Lab 13: Heart Anatomy
February 7	Cardiovascular System: The Heart	Lab 14: Cardiovascular Physiology
February 14	Cardiovascular System: Vessels	Lab 15: Blood Vessel Dissection
February 21	Cardiovascular System: Vessels	Lab 16: Blood Pressure Concept Map
February 28	Blood and Immunity Lecture Exam 1 (March 4)	Lab 17: Hematology
March 7	Blood and Immunity	Lab 18: Detecting Pathogens w/ ELISAs
March 14	Spring Break (March 14-March 20)	
March 21	Respiratory System	Lab Exam 1 (Labs 12-17)
March 28	Respiratory System	Lab 19: Respiratory Anatomy
April 4	Digestive System	Lab 20: Digestive Anatomy
Last day to withdraw from a class: April 10		
April 11	Lecture Exam 2 (April 13) Digestive System	Lecture: Digestive System (1 hr) Lab 21: PhysioEx Digestive Physiology
April 18	No class on Tues, Apr. 20 (Registration) Urinary System	Lecture: Urinary System
April 25	Urinary System	Lab 22: Urinary Anatomy
May 2	Reproductive Systems Lecture Exam 3 (May 6)	Lab 23: Reproductive Anatomy
May 9	Reproductive Systems	Lab Exam 2 (Labs 19-23)

Histology Notebooks are due no later than 3:00 p.m. May 12. No exceptions!

Final exam: May 14-19 (scheduled by the Registrar)