ANATOMY & PHYSIOLOGY I **BIOL201-H1**
William Hanna, Ph.D. **Spring 2010**

Onsite meetings: Wed. 3:00-5:15 p.m. Room S-546 (Brockton)
1/27, 2/10, 2/17, 3/3, 3/10, 3/24, 4/14, 4/28, 5/5, and 5/12

Office hours: Mon. and Wed. 9:00-10:00 a.m.
(onsite) 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.)
fax: (508) 427-1231
mail: Biology Dept., One Massasoit Blvd, Brockton, MA 02302
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 first part of a two-semester course that presents in a comprehensive manner the structure and function of the human body. Topics include tissues and the integumentary, skeletal, muscular, and nervous systems. A dissection component of the laboratory work is required for successful completion of the course. Three lecture hours; two laboratory 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, or Departmental 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 Biological Principles I. Furthermore, it is expected that you have remained familiar with many of the topics covered in Biological Principles I, such as atomic and molecular structure, properties of macromolecules, eukaryotic cell structure and function, plasma membrane dynamics, and energy transformations. These topics will be covered in Anatomy and Physiology I or 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 (<u>required</u>; 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.

4. High-speed internet connection (LAN/Ethernet, DSL, cable, etc.)

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

6. 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 (<u>not required</u>, but suggested):

1. 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.

2. Colored pencils: For your lab notebook.

Weekly learning objectives and reading guides:

Each week when you visit the course website, you will be given a list of objectives that you need to complete within that week towards learning the lecture material for the course. These objectives will include readings from the textbook, online activities and animations, homework questions and an online quiz that you'll take at home through Blackboard Campus Edition 8 (CE8). If you fall behind, it will become difficult to catch up. We cover a tremendous amount of material in this course, and it can be overwhelming for the day students. Taking this course online can present a whole series of additional challenges.

Reading the book:

In the absence of the lecture environment, you have to rely on your textbook. Each week, I will assign specific readings from the book. During the day classes, we do not cover the material in as detailed a fashion as the book does, so you will notice that I will pick sections throughout the book. You're certainly

welcome to read each chapter from start to finish, but you won't be responsible for all of the material in each chapter.

Online quizzes:

Each week of material will be accompanied by a quiz that you will take in CE8. You will have a week to take each quiz. You are neither timed nor must you complete the quiz in one session. Quizzes become unavailable at 9:00 a.m. on the following Monday. These quizzes count as a maximum of 140 extra credit points towards your final grade. The purpose behind these quizzes is to motivate you to stay current with the course material.

System Assignments:

We will cover four body systems (integumentary, skeletal, muscular and nervous), as well as sections on tissues and articulations and an introduction to anatomy and physiology. Together, these seven areas will comprise our course of study this semester. For each of these areas, you have been given a packet of questions that you must answer and submit for a grade. The purpose of these System Assignments is to get you to practice answering the types of questions I ask and to give you an opportunity to research answers from the textbook and/or lab manual.

Onsite meetings and labs:

We will meet together ten times during the semester. These meetings are mandatory and their dates are posted at the top of this document. We will use this time to complete lab activities and to take lecture and lab exams. Because we won't see each other very often, occasionally we'll fit multiple lab activities into a single lab. Therefore, it's very important that you do not miss these meetings.

You have received a series of objectives for each lab. These objectives will outline what you are expected to accomplish during the assigned lab time and how you should focus your time before the next lab session. Occasionally, a lab activity will have a short lab handout that will be turned in for a grade. These will be short enough so that you can finish them and turn them in immediately. You cannot turn in a lab handout unless you have completed the lab activity.

A great deal of the Anatomy & Physiology lab experience will be conducted on your own. As any of the day students will tell you, they spend lots of their own time in the lab, learning the bones and muscles or studying tissues under the microscope. This means that you will undoubtedly need to come in at different times to study the materials.

During the course of this semester, we will use the 9th edition of Elaine Marieb's *Laboratory Manual for Human Anatomy & Physiology*. It contains the instructions for the labs that we'll do. I will not assign you homework out of the lab manual, and therefore I don't consider the lab manual a required purchase for everyone. At least one person in your lab group should have a copy for our onsite meetings. I think that students do benefit from having their own copy, but I don't consider it a necessity (like the textbook). Older editions of the lab manual are fine, but you may need to flip around for the correct section. (Please note that some A&P2 instructors may be less flexible than I am and may require the current edition.)

Late assignments:

Late assignments will not be accepted. If you are absent on the day an assignment is due, you must get it to me by 3:00 p.m. Friday of the week it is due, unless you've made an arrangement with me **in advance**. Faxing assignments is acceptable, but please make sure you include my name somewhere on the cover sheet.

Grading:	**Your grade**	**Total # points**
System Assignments (300 pts)		
Preview and Review		40
Tissues		50
Integumentary System		25
Skeletal System		50
Articulations		25
Muscle		50
Nervous System		60
Lab Notebook		200
Sweat Gland Distribution Lab Report		10
PhysioEx Lab Report		60
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 extra credit points)		
Week 1 Quiz: Introduction to Anatomy & Physiology		10
Week 2 Quiz: Tissues		10
Week 3 Quiz: Integumentary System		10
Week 4 Quiz: Introduction to Skeletal Tissues		10
Week 5 Quiz: The Axial Skeleton		10
Week 6 Quiz: The Appendicular Skeleton		10
Week 7 Quiz: Articulations		10
Week 8 Quiz: Introduction to Muscle Tissue		10
Week 9 Quiz: Muscle Contraction		10
Week 10 Quiz: Muscle Physiology		10
Week 11 Quiz: Introduction to Nervous Tissue		10
Week 12 Quiz: The Brain		10
Week 13 Quiz: The Spinal Cord & PNS		10
Week 14 Quiz: Autonomic Nervous System		10
Final Exam		400

Your total	**Total points**
	2220

A	Above 2052	B-	1765-1831	D+	1477-1542
A-	1987-2052	C+	1699-1764	D	1388-1476
B+	1921-1986	C	1610-1698	D-	1321-1387
B	1832-1920	C-	1543-1609	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 at the end of the semester in the event you are not happy with your grade.

Attendance:

Your attendance is expected at all onsite 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. In a traditional face-to-face course, non-participating students are withdrawn from the course. Because the hybrid format can make it difficult for me to determine your participation (or your lack thereof), I do not request that the Registrar withdraw students. What this means for you is this: if you stop participating in this course and take no action on your end, you will fail this course and that may severely impact your academic goals in the future. Many students have been turned down for competitive programs even though they have successful careers all because they have an F on their transcript from a class they blew off decades earlier. **If you stop participating in this class, please formally withdraw. Otherwise, you will fail.**

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 a 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.

Week of:	Weekly course work (completed at home)	Onsite Activity Planned	What's due at onsite meeting?
Jan. 24	❑ **Week 1 Reading Guide**: (Preview and Review) ❑ Send e-mail	❑ Lab 1	❑ Lab Safety Sheet (completed during lab)
Jan. 31	❑ **Week 2 Reading Guide**: (Tissues) ❑ Week 1 Quiz* ❑ Week 2 Quiz* ❑ Lab 2	***No onsite meeting this week***	
Feb. 7	❑ **Week 3 Reading Guide**: (Integumentary Sys.) ❑ Week 3 Quiz*	❑ Lab 3	❑ System Assignment: Preview and Review ❑ Rough draft of tissue ID key (Part 1 of Tissue System Assignment)
Feb. 14	❑ **Week 4 Reading Guide**: (Intro Skeletal Tissue) ❑ Week 4 Quiz*	❑ Lab 4	❑ Lab 4 Report (completed during lab) ❑ System Assignment: Integumentary System
Feb. 21	❑ **Week 5 Reading Guide**: (Axial Skeleton) ❑ Week 5 Quiz*	***No onsite meeting this week***	
Feb. 28	❑ **Week 6 Reading Guide**: (Append. Skeleton) ❑ Week 6 Quiz*	❑ Lab 5 ❑ Lab 6	❑ System Assignment: Tissues (incl. final tissue ID key)
Mar. 7	❑ **Week 7 Reading Guide**: (Articulations) ❑ Week 7 Quiz*	❑ **Lecture Exam 1** ❑ Open lab time	❑ System Assignment: Skeletal System ❑ Histology Notebook (not for a grade; only for feedback)
Mar. 14	***Spring Break***		
Mar. 21	❑ **Week 8 Reading Guide**: (Intro Muscle Tissue) ❑ Week 8 Quiz*	❑ **Lab Exam 1**	❑ System Assignment: Articulations
Mar. 28	❑ **Week 9 Reading Guide**: (Muscle Contraction) ❑ Week 9 Quiz*	***No onsite meeting this week***	
Apr. 4	❑ **Week 10 Reading Guide**: (Muscle Physiology) ❑ PhysioEx simulation ❑ Week 10 Quiz*	***No onsite meeting this week***	
Apr. 11	❑ **Week 11 Reading Guide**: (Intro Nerv. Tissue) ❑ Week 11 Quiz*	❑ **Lecture Exam 2** ❑ Lab 7 ❑ Lab 8	❑ System Assignment: Muscle ❑ PhysioEx simulation

Apr. 18	❑ **Week 12 Reading Guide**: (CNS – The Brain) ❑ Week 12 Quiz*	***No onsite meeting this week***	
Apr. 25	❑ **Week 13 Reading Guide**: (CNS – Spinal Cord & PNS – Nerves) ❑ Week 13 Quiz*	❑ Lab 10 ❑ Lab 11	
May 2	❑ **Week 14 Reading Guide**: (Autonomic Nervous Sys.) ❑ Week 14 Quiz*	❑ **Lecture Exam 3** ❑ Open lab time	
May 9	**No new material**: ❑ Review for Final Exam**	❑ **Lab Exam 2**	❑ System Assignment: Nervous System ❑ Histology Notebook

Histology Notebooks are due for a grade no later than May 12 (day of Lab Exam 2). No exceptions!

**** All weekly online quizzes must be completed by 9:00 a.m. of the following Monday.***
*****Final exam will be held at 3:00 p.m., Wednesday, May 19.***