

Welcome to
Human Anatomy & Physiology
 BI 234 - Fall 201X

Course Introduction

Instructor: Mike LeMaster
Office: 115 DFSC (DeVolder)
E-Mail: lemastm@wou.edu
Phone: 838 - 8136 (x8-8136)
Office Hours: M / W / F: 10:00 – 11:30 am

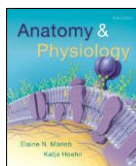


Lectures: MWF: 9:00 – 9:50 am HWC 105
Labs: No Lab = See Me! DFSC 101

Laboratory
this
week!

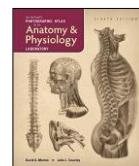
- Prepared slides; anatomical models; human cadavers
- Computer-based physiological experiments

Texts:



(Required)
Anatomy and Physiology (6th ed.)
 Marieb & Hoehn

(Optional)
Van De Graaf's Photographic Atlas of Anatomy
 and Physiology Laboratory (8th ed.)
 Morton & Crawley



Course Introduction

Grading:

Exam 1	75
Exam 2	75
Exam 3	75
Final	125
Laboratory	<u>150</u>
	500



Testing Format:

- Multiple choice
- True / False
- Matching (w/ diagrams)
- Fill-in-the-blank / Short answer

Grading Scale (approximate):

NO extra credit...	100 - 90% = A	65 - 55% = D
	90 - 80% = B	< 55% = F
	80 - 65% = C	

* + / - given accordingly

Course Introduction

Website:

Online materials available through Moodle: <http://online.wou.edu>

How to get the most out of BI 234:

- 1) Come to class
- 2) Read the book before lecture
- 3) Do your best in lab (It's 30% of your grade!)
- 4) Seek understanding of concepts
 - talk to your professor
 - visit the tutoring center
 - start a study group
- 5) Stay Healthy!
- 6) Apply what you learn!





(insulin)



Diabetes mellitus




Course Introduction


What is Anatomy and Physiology?

Anatomy:
Study of body structure and the physical relationships between body parts

Microscopic Anatomy
(requires magnification)




Cytology:
Study of cells

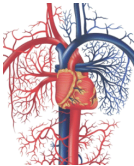


Histology:
Study of tissues

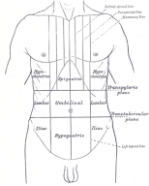
Gross Anatomy
(visible to naked eye)



Regional Anatomy:
Study of structures in particular region





Systemic Anatomy:
★ Study of organ systems



Surface Anatomy:
Study of structures related to skin


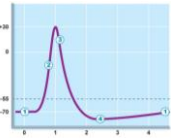
Course Introduction

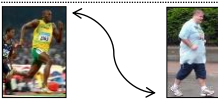
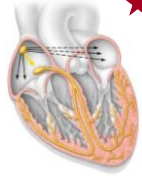
What is Anatomy and Physiology?

Physiology:
Study of how living organisms perform vital functions

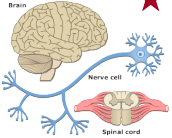
"Laws of Physics" constrain / explain physiological processes...

Cell physiology (occasionally)

Organ physiology

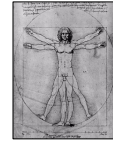


System physiology

Examples:

Metabolism = **Laws of thermodynamics**

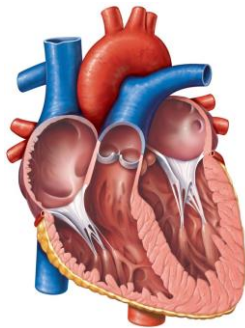
Gas exchange = **Boyle's law**



Why Study Anatomy and Physiology Together?

The two disciplines are interrelated

(structure dictates function; function implies structure)



Heart Physiology: One-way blood flow

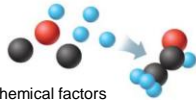
Heart Anatomy: One-way valves

Principle of Complementary of Structure and Function

Marieb & Hoehn (Anatomy and Physiology, 6th ed.) – Figure 17.5

Review: Chapter 3 (Marieb / Hoehn)

Structural Organization:



Chemical factors

Review: Chapter 2 (Marieb / Hoehn)

5) Organism level

- Organ systems = life



1) Cellular level (~ 100 trillion)

- Basic structural / functional unit
- Molecular interactions

2) Tissue level

- Similar cells → specific function
- Epithelial
- Connective
- Muscle
- Nervous

3) Organ level

- ≥ 2 tissues → specific function

4) Organ system level

- ≥ 2 organs → specific function

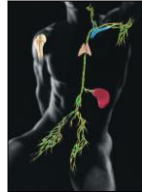
Marieb & Hoehn (Anatomy and Physiology, 6th ed.) – Figure 1.1

Organ Systems:

Protection:



Integumentary System



Immune System

Movement / Support:



Skeletal System

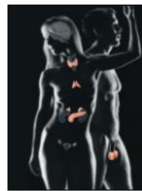


Muscular System

Communication:



Nervous System



Endocrine System

Fluid / Solute transportation:

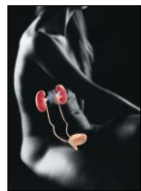


Cardiovascular System

Marieb & Hoehn (Anatomy and Physiology, 6th ed.) – Figure 1.3

Organ Systems:

Waste removal:

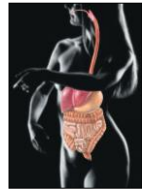


Urinary System



Respiratory System

Nutrient acquisition:

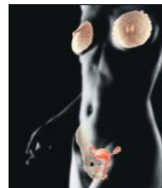


Digestive System



Respiratory System

Reproduction:



Female reproductive system



Male reproductive system

- Obvious sex differences
- Not absolutely necessary

Marieb & Hoehn (Anatomy and Physiology, 6th ed.) – Figure 1.3



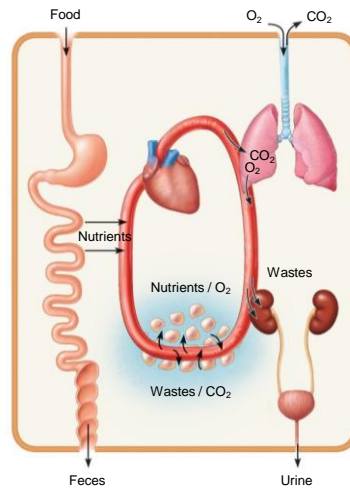
Course Introduction

Reminder:

Organ systems work cooperatively to promote the well-being of the entire body

Example:
ATP production

Digestive system:
Takes in nutrients, breaks them down, and eliminates unabsorbed matter



Respiratory system:
Takes in oxygen and eliminates carbon dioxide

Cardiovascular system:
Distributes oxygen and nutrients to all cells; delivers wastes and carbon dioxide to disposal organs

Urinary system:
Eliminates nitrogenous wastes and excess ions

Marieb & Hoehn (Anatomy and Physiology, 6th ed.) – Figure 1.2

Course Introduction

Regulatory Systems:

For life to continue, precise internal body conditions must be maintained regardless of external conditions

The principle function of regulatory systems is to maintain homeostasis



Claude Bernard
(1813 – 1878)

Homeostasis:

The process of maintaining a relatively stable internal environment

- Not a static process (dynamic equilibrium)
- Requires energy (unlike a true equilibrium state)



Walter Cannon
(1871 – 1945)



Pathophysiology: The study of homeostatic imbalance (i.e., disease)
(moderate imbalance = illness; extreme imbalance = death)

