

...Welcome to Human Physiology – what makes us tick!



*Giuseppe*

## BI 121 Lecture 1

- I. **Announcements:** Please check & sign attendance roster. Not on list? See Pat during break/>class. **Lab 1 Histology** Thursday, 10 am – 5 pm sections in 130 HUE. Much fun!!
- II. **Introduction:** Staff, office hr, required sources, course overview, grading, expectations & success. Q?
- III. **Human Physiology** LS ch 1, DC Module 1,
  - A. What? cf: Anatomy LS p 1
  - B. Where? Body Levels of Organization LS pp1-6, DC pp1-5
  - C. How? Different Study Approaches LS p 1
  - D. Why? Security+Decision-Making Power LS p xxi, DC p v
- IV. **Homeostasis** LS ch 1, DC Module 1
  - A. What? Maintenance of ECF LS p 8
  - B. Where? ECF = Plasma + Interstitium LS fig 1-4 p 8
  - C. How? Simplified Homeostatic Model cf: LS fig 1-7 p 14 Balances LS p 9, DC pp 5-6
  - D. Why? Cell survival! LS fig 1-5 p 9, DC p 5

## BI 121 Lecture 3



...Anatomy & Physiology Lab Thurs! Fun again!

- I. **Announcements** Registered? AEC Notes? **Come to office hr!**
- II. **Connections** Videos + Q about Homeostatic Model for BP
- III. **Cell Anatomy, Physiology & Compartmentalization** LS ch 2
  - A. How big? What boundaries? Why compartments? pp19-21
  - B. Basic survival skills ch 1 p 3
  - C. Organelles ≡ Intracellular specialty shops w/membranes
    1. Endoplasmic Reticulum (ER) 2. Golgi 3. Lysosomes
    4. Peroxisomes & 5. Mitochondria. LS 2012 pp 20-34 fig 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7, 2-8 pp 20-7 tab 2-1 p 36
  - D. What about vaults? LS 2006, p 32
  - E. **Physiol News** Moms eggs execute Dad's mitochondria?
- IV. **Anaerobic vs Aerobic Metabolism Overview** Many sources! Mathews & Fox 1976...LS 2012 pp 26-33, fig 2-15 p 33
- V. **Introduction to Genetics** LS 2012 ch 2 p 20-1 + Appendix C
  - A. What's a gene? Where? p A-18, fig C-2, C-3
  - B. Why are genes important? p A-18
  - C. What's DNA & what does it look like? pp A-18 thru A-20
  - D. How does information flow in the cell? fig C-6
  - E. How does DNA differ from RNA? pp A-20 thru A-22
  - F. Genetic code? pp A-22, A-23
  - G. How are proteins made? fig C-7, C-9

... Thanks for signing attendance roster & noting late arrival or early departure time!



## BI 121 Lecture 2

- I. **Announcements** Lab 1 Histology today! 130 HUE. Fun! Readings: DC, LS, LM? **NB:** UO Biology blog vs. Canvas <http://blogs.uoregon.edu/bi121/fall-2016/>
- II. **Homeostasis** LS ch 1, DC Module 1
  - A. **What?** Maintenance of ECF LS p 8
  - B. **Where?** ECF = Plasma + Interstitium + ? LS fig 1-4 p 8
  - C. **Homeostatic Balances?** LS p 9, DC pp 5-6
  - D. **Why?** Cell survival! LS fig 1-5 p 9, DC p 5
  - E. **Physiology in the News** H<sub>2</sub>O? Are we like watermelons?
  - F. **How** are balances maintained? Simplified Homeostatic Model cf: LS fig 1-7 p 14; T°C + BP balance e.g. + vs. - FB
- III. **Cell Anatomy, Physiology & Compartmentalization** LS ch 2
  - A. How big? What boundaries? Why compartments? pp 19-21
  - B. Basic survival skills LS ch 1 p 3
  - C. Organelles ≡ Intracellular specialty shops
    - Endoplasmic Reticulum (ER), Golgi, Lysosomes, Peroxisomes & Mitochondria, LS fig 2-1, 2-2, 2-3 pp 20-3

## BI 121 Lecture 4




Structure-function = fun!




- I. **Announcements** Anatomy & Physiology Lab today! Be sure to complete p 3-7 dietary record in LM < lab next wk! Help with estimating serving sizes for Nutrition Lab 3. Q?
- II. **Cell Organelle Connections** Little organs or specialty shops!
- III. **Physiology News** ♀ vs ♂ Mitochondria; Vaults? **Sci News**
- IV. **Anaerobic vs Aerobic Metabolism Connections** LS ch 2 pp 26-33
  - A. Take-home points + key differences fig 2-15 + vpl
  - B. Few details: Glycolysis, CAC, ETC fig 2-9, 2-10, 2-11, 2-12
- V. **Introduction to Genetics** LS pp 20-1 + Appendix C
  - A. What's a gene? Where? p A-18, fig C-2, C-3
  - B. Why are genes important? p A-18
  - C. What's DNA & what does it look like? pp A-18 thru A-20
  - D. How does information flow in the cell? fig C-6
  - E. How does DNA differ from RNA? pp A-20 thru A-22
  - F. Genetic code? pp A-22, A-23
  - G. How are proteins made? Class skit! fig C-7, C-9



- I. **Announcements** Nutrition Analyses this Thursday!  
Please record diet on p 3-7 LM & begin analysis using <https://www.supertracker.usda.gov/> Bring flash drive? Q?
- II. **Metabolism Connections** Mitochondrial metabolism +
- III. **Introduction to Genetics** LS 2012 ch 2 p 20-1 + Appendix C
  - A. How does DNA differ from RNA? pp A-20 thru A-22
  - B. Genetic code? pp A-22, A-23
  - C. How & where are proteins made? fig C-7, C-9
  - D. Class skit: Making proteins @ ribosomes!
- IV. **Nutrition Primer** Sizer & Whitney (S&W) Sci Lib
  - A. Essential Nutrients: H<sub>2</sub>O, 1<sup>o</sup> Carbohydrates, 2<sup>o</sup> Fats, 3<sup>o</sup> Proteins, Vitamins, Minerals; Macro- vs Micro-  

  - B. Dietary Guidelines: USDA, AICR, Eat Like the **Rainbow!**
  - C. Diet or exercise? Diet composition & endurance? Fasting? Zuti & Golding 1976; Sacks **AHA NPAM Council** 2009; AMDR? Adjusted Macronutrient Distribution Range!
  - D. **Beware of Nutrition Quackery** S. Kleiner & Monaco 1990!
- V. **Nutrition in the News** Gain weight by drinking calories?
- VI. **Introduction to Digestion** Steps + hydrolysis

 ...Put Lab Notebook in box based on your lab time. Thanks!!

- I. **Announcements** Exam I one week from today, Oct 25<sup>th</sup>! Summary & Review, Sunday Oct 23<sup>rd</sup>, 6-7:30 pm, here! Q? 
- II. **Nutrition Final Comments & Discussion** Recommended diets? Nutrition Quackery? Kleiner & Monaco. Diet & disease?
- III. **Gastrointestinal Physiology** DC Module 3 pp 17-23, LS ch 15+
  - A. GI = Donut? GI secretions: What? Where? Why? LS p 438
  - B. How is the gut controlled?
  - C. Organ-by-organ review A&P LS tab 15-1 pp 440-1 +...
  - D. Zymogen? = Inactive precursor LS fig 15-9 p 452...
  - E. Accessory organs? Pancreas, Liver, Recycling! pp 457-63
  - F. Small intestine? Ulcers? LS fig 15-20, 15-22 pp 467-8  
<http://www.cdc.gov/ulcer> *Beyond the Basics* LS p 456
  - G. Large intestine? LS fig 15-24 pp 472-4
- IV. **Cardiovascular System** DC Mod 4, LS ch 9, Torstar, G&H+...
  - A. Circulatory vs. Cardiovascular (CV)? CV vs. Lymphatic CV Pulmonary & Systemic circuits DC pp23-31+LS p229+ DC fig 4-1 p 24, LS fig 9-2b p 231
  - B. Arteries, capillaries, veins, varicosities? G&H, Torstar, DC
  - C. ♥ layers, box, chambers, valves, inlets, outlets LS fig 9-4 p 233, fig 9-2a p 231; DC pp 23-6
  - D. Normal vs. abnormal blood flow thru ♥ & CVS LS, Fox+...



- I. **Announcements** Data + Flashdrive for today's lab! Q? If you want notebook to study for Exam I on Oct 25<sup>th</sup>, turn in prior lecture next Tuesday, Oct 18<sup>th</sup>. Sample Exam Q.
- II. **Nutritional Physiology in the News** Pondering Paleo *Nutrition Action Health Letter*, Marlene Zuk, U Minnesota + Shake the salt habit! *UC Berkeley Newsletter*. → Drink Your Calories? *PEBB Identifying Nutrition Quackery*, Kleiner & Monaco
- III. **Nutrition Connections** DC Mod 2, Sizer & Whitney (S&W) Sci Lib
  - A. Diet & endurance? What's the best path to losing weight?
  - B. Low-carbohydrate dieting? What about fasting?
  - C. Balanced approach, Dr. Sacks **AHA NPAM Council**
- IV. **Gastrointestinal Physiology** DC Module 3 pp 17-23, LS ch 15+
  - A. GI = Donut? GI secretions: What? Where? Why? LS p 438
  - B. How is the gut controlled?
  - C. Organ-by-organ review A&P LS tab 15-1 pp 440-1 +...
  - D. Zymogen? = Inactive precursor LS fig 15-9 p 452...
  - E. Accessory organs? Pancreas, Liver, Recycling! pp 457-63
  - F. Small intestine? Ulcers? LS fig 15-20, 15-22 pp 467-8  
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  - G. Large intestine? LS fig 15-24 pp 472-4

 Fun heart rate & BP lab today! Hooray!!!
 

- I. **Announcements** Exam I next session; 10 am & 2 pm lab sections go directly to 5 KLA & 202 CAS. All others here (100 WIL)! Review: Sunday, 6 pm here! Lab notebooks. Q?
- II. **Cardiovascular Connections** LS 2012 ch 9, Torstar Books+...
- III. **CV Physiology in News** AHA + NHLBI websites. Nic? ACSM, AHA, DHHS Healthy people exercise guidelines!
- IV. **CV Pathophysiology & Risk Reduction** LS ch 9, 10 +...
  - A. AMI, CVA, CVD, PVD, TIA, HTN? + surgical treatments
  - B. Atherosclerosis? LS fig 9-27, 9-25, 9-26 pp 266-8
  - C. How to minimize risk of CVDs? Treatment triad: Exercise, Diet, Drugs+Surgery
  - D. Food choices make a difference? What's HAPOC?

