

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



Erin Waples

BI 121 Lecture 1

- I. **Announcements:** Please check & sign attendance roster. Not on list? See Pat during a break or after class. *Lab 1 Histology* tomorrow in 130 HUE: 12 n & 1 pm sections.
- 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 tomorrow!**...



- I. **Announcements** Q from lecture or lab?
- II. **Cell Physiology Connections** LS ch 2 pp 20-34, fig 2-1...2-8
 - A. Organelles ≡ ICF specialty shops: 1. Endoplasmic Reticulum 2. Golgi Apparatus 3. Lysosomes 4. Peroxisomes 5. Mitochondria tab 2-1 p 36
 - B. Exocytosis vs. Endocytosis fig 2-5 a & b, p 25
 - C. **Physiol News** Moms eggs execute Dad's mitochondria?
 - D. What about vaults? LS 2006, p 32 + *Science News*
- III. **Anaerobic vs Aerobic Metabolism Summary** LS ch 2 pp 26-33
 - A. Key differences fig 2-15 + vpl
 - B. Selected details: Glycolysis, CAC, ETC, fig 2-9 thru 2-12
- IV. **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

...Histology exploratory fun!! Thanks for signing in!



BI 121 Lecture 2

- I. **Announcements** Lab today 12 n & 1 pm. Q last time?
- II. **Connections** Extracellular fluid (ECF) & Homeostasis
 - A. ECF: Plasma vs. Interstitium?
 - B. Dr Evonuk Balances LS pp 5 - 15
 - C. **Physiology in the News** Are we like watermelons?
 - D. Simplified Model DO Norris cf: fig 1- 8 LS
 - E. Negative feedback? Positive feedback? LS pp 14 - 15
 - F. Balances & e.g. H₂O, T°C, BP Dr Evonuk + LS pp 8 - 10
- III. **Cell Anatomy, Physiology & Compartmentalization** ch 2 (LS)
 - A. How big? What boundaries? Why compartments? pp19-21
 - B. Basic survival skills ch 1 p 3
 - C. Organelles ≡ Membranous, cytoplasmic specialty shops!
 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. **Physiol News** Moms eggs execute Dad's mitochondria?
 - E. What about vaults? LS 2006, p 32 + *Science News*

BI 121 Lecture 4

Anatomy & Physiology Lab today!... Exam I next Thursday > 4th of July!!



- I. **Announcements** **Nutrition Analysis Lab next Thursday!** Please record your diet on p 3-7 LM & begin analysis using <https://www.supertracker.usda.gov/> Estimating quantities. Q?
- II. **Cell Metabolism Connections** LS 2012 fig 2-9 thru 2-12 +...
- III. **Introduction to Genetics** LS ch 2 p 20-1 + Appendix C
 - A. What's a gene? DNA? Why important? pp A-18 thru A-20 +
 - B. How does information flow in the cell? fig C-6
 - C. How does DNA differ from RNA? pp A-20 thru A-22
 - D. Genetic code? pp A-22, A-23
 - E. How & where are proteins made? fig C-7, C-9
 - F. Class skit: Making proteins @ ribosomes!
- IV. **Nutrition Primer** DC Module 2,Sizer & Whitney(S&W) Sci Lib
 - A. Essential Nutrients: H₂O, 1⁰ Carbohydrates, 2⁰ Fats, 3⁰ 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. **Nutrition Quackery, Balanced Approach** Kleiner, Monaco+





Hey - I'll be ready because I book it!!



BI 121 Lecture 5

- I. **Announcements** Data + Flashdrive for Thursday's lab! Q? Thanks for recording dietary data on LM p 3-7 & exploring <https://www.supertracker.usda.gov/>. Sample Exam Questions.
- II. **Nutritional Physiology in the News** Pondering Paleo Nutrition Action Health Letter, Marlene Zuk, U Minn. Animal sources, inflammation & disease? Drink Your Calories? *PEBB* Shake the salt habit! *UC Berkeley Newsletter*. Successful Dieting?
- III. **Nutrition Primer** DC Module 2,Sizer & Whitney (S&W) Sci Lib
 - A. Dietary Guidelines: USDA, AICR, Eat Like the *Rainbow!*
 - B. Best path to weight loss? Diet or exercise or both? Dietary composition & endurance? Fasting? Zuti & Golding 1976; Sacks *AHA NPAM* 2009; AMDR?
 - C. *Nutrition Quackery*, *Balanced Approach* Kleiner, Monaco+
- IV. **Digestion** LS 2012 ch 15, pp 437-9, DC Module 3 pp 17-23
 - A. Steps of digestion Dr. Evonuk + LS pp 437- 9; DC p 23
 - B. Hydrolysis + monomer to polymer: central linking themes! LS p 438, Fox 2009 +
 - C. What's missing? LS fig 15-1 p 438
 - D. GI-Donut analogy + Control mechanisms. Dr. Brilla @ WWU
 - E. Gut secretions LS p 438, 440-1
 - F. Organ-by-organ review LS tab 15-1 pp 440-1 + DC fig 3-1

BI 121 Lecture 6 + Q + 1/2 Midterm Review

- I. **Announcements** Next session Q? ~1/2 review, then Midterm. Fun Lab 3 Nutrition today! Sample Suisse Calculation? Q?
- II. **Nutrition in the News** Be a whiz at healthy grilling! *American Institute for Cancer Research*, Grilling Quiz!
- III. **Digestion Connections** LS ch 15, DC Module pp 17-23
 - A. Histology of the gut LS fig 15-2, 15-3 p 442-3
 - B. Stomach protein digestion + zymogens? LS fig 15-7, 15-9
 - C. Accessory organs: Pancreas & Liver + Recycling! LS pp 457-63
 - D. Small intestine? Ulcers? LS fig 15-20,15-22 pp 467-8 <http://www.cdc.gov/ulcer> Beyond the Basics LS p 456
 - E. Summary of chemical digestion LS tab 15-5 p 466
 - F. Large intestine? LS fig 15-24 pp 472-4
- IV. **Midterm Review** Discussion + Q?

Midterm Review Slides

