

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



✓ *Giv Nathapeter*

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!...



- I. **Announcements** **Nutrition Analysis Lab next Tuesday!** 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, 1^o Carbohydrates, 2^o Fats, 3^o 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+



BI 121 Lecture 5

Yes, more fun!... 

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



I. Announcements Lab 3 tomorrow Nutritional Analyses.
Thanks for recording dietary data on LM p 3-7 & exploring
<https://www.supertracker.usda.gov/>. Sample Exam I Questions.

II. Nutritional Physiology in the News

Gain weight by drinking your calories? PEBB Newsletter
Salt-beyond hypertension *UCB Wellness Letter*, June 2011

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 Council** 2009; AMDR? Adjusted Macro-nutrient Distribution Range!
- 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: the central linking theme! LS p 438, Fox 2009
- C. What's missing? LS fig 15-1 p 438
- D. GI-Donut analogy? Dr. Lorraine Brilla WWU
- E. Gut secretions: What? Where? Why? 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 + ½ Midterm Review

I. Announcements **Next session Q? ~½ 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

