Bl 121 Lecture 1

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

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

Bl 121 Lecture 2

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

I. **Announcements** Lab 1 Histology today! 130 HUE. Fun! Readings: DC, LS, LM? ***NB***: UO Biology blog *vs.* Blackboard or Canvas http://blogs.uoregon.edu/bi121/fall-2015/

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_2O? 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

Bl 121 Lecture 3

Anatomy & Physiology Lab Thurs! Fun again...

I. **Announcements** UWGS Mentor? Registration? Q? Office hr?

II. **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 ≡ 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. What about vaults? LS 2006, p 32
- E. ***Physiol News*** Moms eggs execute Dad's mitochondria?

III. **Anaerobic vs Aerobic Metabolism Overview** Many sources! Mathews & Fox 1976...LS 2012 pp 26-33, fig 2-15 p 33

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
- G. How are proteins made? fig C-7, C-9

Bl 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. **Medical Moment** Structure-Function in Clinical Practice

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. **Cytoskeleton** LS 2012 fig 2-17, 2-18 + LS 2006 fig 2-20

VI. **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

Bl 121 Lecture 5

Nutrition Lab Thursday! More fun...

I. Announcements Nutrition Analysis Lab this Thursday! Please record diet on p 3-7 LM & begin analysis using https://www.supertracker.usda.gov/ Bring flash drive? Q?

II. 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!

III. Nutrition Primer Sizer & Whitney (S&W) Sci Lib
- A. Essential Nutrients: H_2O, 1^0 Carbohydrates, 2^0 Fats, 3^0 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!

IV. Nutrition in the News Gain weight by drinking calories?

V. Introduction to Digestion Steps + hydrolysis

Bl 121 Lecture 6

Nutrition Lab 3 today! More fun about me...

I. Announcements Got Data? Crucial for today's lab! Q? If you want notebook to study for Exam I on Oct 27th, turn in prior lecture next Tuesday, Oct 20st. Sample Exam Q.

II. Nutritional Physiology in the News Shake the salt habit! Gain weight by drinking your calories? Coconuts are on a roll? *UCB 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 http://www.cdc.gov/ulcer *Beyond the Basics* LS p 456
- G. Large intestine? LS fig 15-24 pp 472-4

Bl 121 Lecture 7

Exam I one week from today! I'll be ready!...

I. Announcements Lab Notebooks? Q? from last time?

II. GI Physiology Connections DC Module 3 pp 17-23, LS ch 15+
- A. Organ-by-organ review SI Fox, LS tab 15-1 pp 440-1 +...
- B. Zymogen? = Inactive precursor LS fig 15-9 p 452...
- C. Accessory organs? Pancreas, Liver, Recycling! 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. Large intestine? LS fig 15-24 pp 472-4

III. 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+…

Bl 121 Lecture 8

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

I. Announcements Exam I next session; 11 am & 12 n lab sections go directly to 11 PAC & 12 PAC. All others here (100 WIL)! Review: Sunday, 6 pm 100 WIL! 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?