

## BI 121 Lecture 9

We survived the exam! Happy Halloween!!  
Remember nutrient p & have safe fun!



**I. Announcements** No lab today! Break for exam week!  
Next R Blood Chemistry. Thanks sincerely for helping us  
optimize safety by reading  $\geq 2x$  Lab 5, LM pp 5-1 thru 5-6.

- II. Blood Form & Function** LS ch 11, DC Module 5 pp 35-9
- A. Formed vs Nonformed/cells vs plasma LS fig + tab 11-1  
Cell origin - bone marrow. What's in plasma? LS p 297
  - B. Red blood cells/erythrocytes:  $O_2$  carrying LS p 299  
Normal flexible vs fragile sickle cell LS p 301
  - C. White blood cells/leukocytes: defense/immunity  
differential + general functions LS pp 298, 309-12
  - D. Platelets/thrombocytes: clotting LS pp 304-6 fig 11-6+7

**III. Blood Chemistry Lab: Basics** LM + LS ch 11 & 17

- A. What's blood typing? *ABO* System LS pp 302-4  
Rhesus factor? Erythroblastosis fetalis? LS p 303-4
- B. What's blood glucose? Clinically healthy range?
- C. Diabetes + Treatment LS ch 17 pp 532-5

**IV. Exam Comments & Return**

Ghost, marshmallow  
or white blood cell?



Personal data I can  
use for a lifetime!!



Heck yeah!

## BI 121 Lecture 11

**I. Announcements** **Blood Chemistry Lab today!** Fun!!  
Personal data!!! If you haven't already done so, please  
review Lab 5 in LM & in e-mail. Thanks! Q from last t?

**II. Safety & Techniques Review for Blood Chem Lab** Q?

**III. Endocrine Connections** Peripheral endocrine organs  
DC pp 109-13, LS pp 513-36

- A. Pancreas (insulin – glucagon see-saw!)
- B. Thyroid
- C. Adrenals

**IV. Introduction to the Nervous System** LS ch 5, DC Module 9

- A. Organization? LS fig 5-1 DC p 67
- B. Neurons? What kind? Classes? Velocity? LS fig 5-2, 5-4
- C. Myelin? How does it help? DC fig 9-3, LS pp 83-5
- D. Brain structure & function DC fig 9-6 thru 9-10 pp 71-5+...
- E. **Protect your head with a helmet!** Bicycle head injury  
statistics *NHTSA & BHSI*, 2013 & 2014

## BI 121 Lecture 10



...This Thursday more fun & data about me! Heck yeah!!

**I. Announcements** To make Lab 5 educational, fun & safe for all,  
**please read pp 5-1 thru 5-6 in LM twice before Thursday!**

Remaining exams & notebooks returned > lecture. Key posted  
in glass box in HUE down hall from lab. Estimate grade? Q?

**II. Blood Typing** LS ch 11 + 17, DC Module 5, Q?

**III. Blood Glucose, Insulin Diabetes Connections** DC Module 13+...

**IV. Endocrinology Overview** LS ch 17, DC Module 13, SI Fox+

- A. Vignette: Cushing's syndrome LS fig 17-20 p 521-2
- B. Endocrine system DC p 103 fig 13-1, LS fig 17-1, tab 17-1
- C. What's an endocrine? + classes ~ LS pp 495 - 6
- D. Hypothalamus (Master) – Pituitary (subcontroller)  
DC pp 104-6 + LS pp 499-506
- E. Posterior pituitary + hormones DC p 108, LS fig 17-4 p 502
- F. Anterior pituitary + hormones DC pp 105-7, LS pp 502-6
- G. GH: Body builder's dream? Fountain of youth? LS pp 506-11

Thanks to you, Bella, Heather,  
Tim & Katie!



For your effort  
& your !!

## BI 121 Lecture 12

**I. Announcements** Thanks for your help with blood lab!  
No lab this week. Study for Exam II, Dec 13, Friday 8 am!

**II. Endocrine Connections** Adrenals DC pp 112-3, LS pp 517-25  
[https://www.ted.com/talks/emma\\_bryce\\_how\\_do\\_your\\_hormones\\_work](https://www.ted.com/talks/emma_bryce_how_do_your_hormones_work)

**III. Introduction to the Nervous System** LS ch 5, DC Module 9

- A. How is the nervous system organized? LS fig 5-1 DC p 67
- B. Neurons? What kind? Classes? Velocity? LS fig 5-2, 5-4
- C. What's myelin? How does it help? DC fig 9-3, LS pp 83-5
- D. Brain structure & function DC fig 9-6 thru 9-10 pp 71-5 +...
- E. **Protect your head with a helmet!** Bicycle head injury  
statistics, *NHTSA & BHSI* from 2013 & 2014

**IV. Autonomic Nervous System** LS ch 7 pp 178-85+...

- A. Sympathetic vs Parasympathetic branches LS fig 7-3
- B. Neurotransmitters & receptors LS fig 7-1 & 7-2, tab 7-2
- C. Actions LS tab 7-1
- D. Fight-or-flight stories!



I'm gonna smash Exam II because  
— I'm dedicated & I ♥ physiology!



## BI 121 Lecture 13

### I. Announcements **No lab today – Study for Exam III!**

Optional Lab notebook check after last Lab 6, Mac pulmonary function testing (PFT) next Thursday. Q?

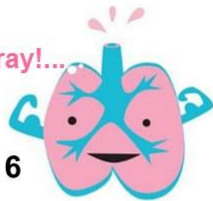
### II. Nervous System Connections NS organization video.

[https://www.youtube.com/watch?v=qPix\\_X-9t7E](https://www.youtube.com/watch?v=qPix_X-9t7E)

### III. Peripheral Nervous System LS sections of ch 3, 4, & 7

- Autonomic NS: Branches, neurotransmitters, receptors, actions, fight-or-flight stories ch 7 pp179-85
- Why are nerve & muscle unique? ch 4 p 71
- How do excitable cells signal? ch 3 pp62-7; ch 4 pp74-83
- How does the signal cross the nerve-muscle gap? ch 7 p 185-92 fig 7-5 p 190
  - Ca<sup>2+</sup> bones!...but what else? p 190
  - What do black widow spider venom, botulism, curare & nerve gas have in common? Botox pp 189-92

Pulmonary Function Testing today! Hooray!...



## BI 121 Lecture 15

### I. Announcements Optional notebook ✓ + Lab 6

Pulmonary Function Testing today. Q?

### II. Pulmonary Function Lab Overview

### III. Muscle Structure & Function LS ch 8, DC Module 12

- Skeletal muscle organization review LS fig 8-2, DC fig 12-2
- Banding pattern? LS fig 8-3, fig 8-7
- How do muscles contract? LS fig 8-6, 8-10
- What's a cross-bridge cycle? LS fig 8-11+...
- Summary of skeletal muscle contraction
- Exercise adaptation variables: **mode, intensity, duration, frequency, distribution, individual & environmental char...?**
- Endurance vs. strength training continuum? fiber types...



Exam II is coming! I'll be ready!...



BI 121 Exam III!



## BI 121 Lecture 14

### I. Announcements Last Lab 6, Pulmonary Function Testing + Optional notebook ✓ this Thur. **Exam II Fri Dec 13, 8am Q? American Heart Association 2019 Philadelphia update.**

### II. Nervous System Connections LS ch 3, 4 & 7; DC Module 9

- Fight-or-Flight Stories!
- How does the signal cross the nerve-muscle gap? LS p 185-92 fig 7-5 p 190; DC pp 69-71 fig 9-4
  - Ca<sup>2+</sup> bones!...but what else? LS p 190
  - What do black widow spider venom, botulism, curare & nerve gas have in common? Botox LS pp 189-92

### III. Muscle Structure & Function LS ch 8 + DC Mod 12

- Muscle types: cardiac, smooth, skeletal LS fig 8-1
- How is skeletal muscle organized? LS fig 8-2, DC fig 12-2
- What do thick filaments look like? LS fig 8-4, DC fig 12-4
- Thin filaments? Banding pattern LS fig 8-5, 8-3, 8-7
- How do muscles contract? LS fig 8-6, 8-10
- What's a cross-bridge cycle? LS fig 8-11 +...

We're on a roll! Bring on Exam III!



## BI 121 Lecture 16

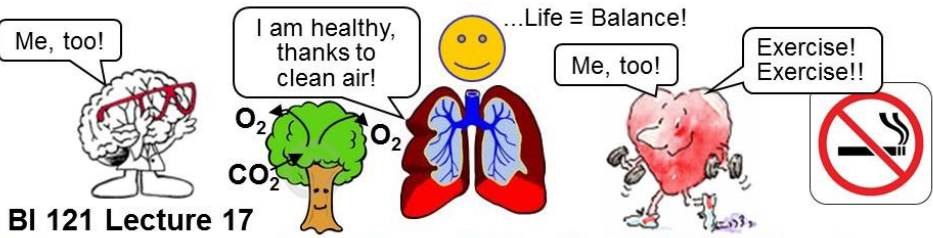
### I. Announcements Notebooks? **Exam II, Dec 13<sup>th</sup> Friday 8 am.** Review session in class next Thurs. Q?

### II. Muscle Contraction & Adaptation LS ch 8, DC Mod 12

- Summary of skeletal muscle contraction  
Malcolm Campbell & David Bolinsky videos
- Exercise adaptation variables: **mode, intensity, duration, frequency, distribution, individual & environmental char...?**
- Endurance vs. strength training continuum? fiber types...

### III. Respiratory System LS ch 12, DC Module 7, Fox +...

- Steps of respiration? External vs. cellular/internal? LS fig 12-1 pp 345-347
- Respiratory anatomy LS fig 12-2 p 347, DC, Fox +...
- Histology LS fig 12-4 pp 347-349, DC
- How do we breathe? LS fig 12-12, fig 12-25 pp 349-356, pp 373-378

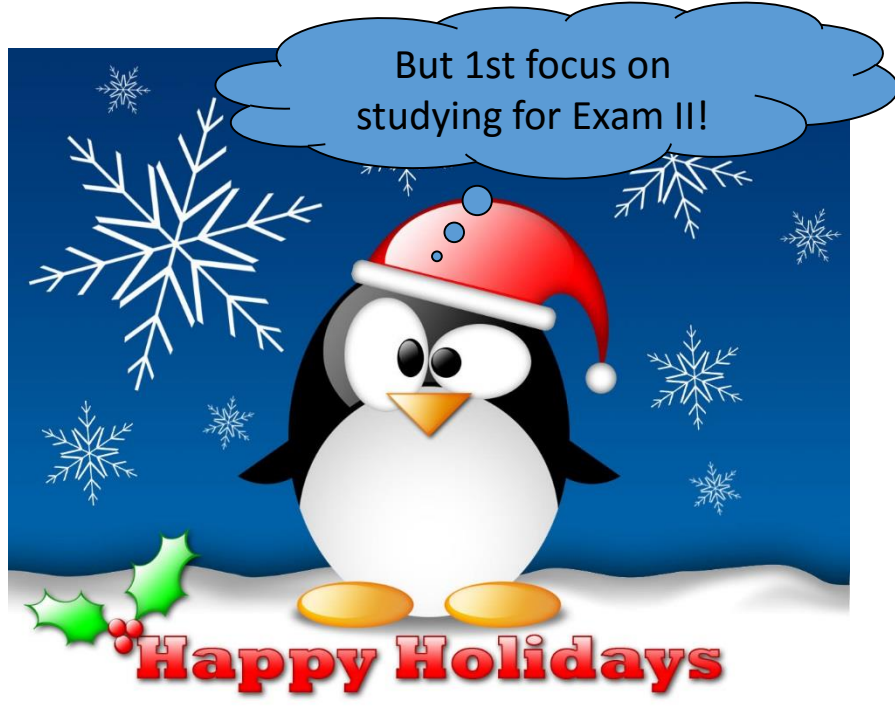


**BI 121 Lecture 17**

**I. Announcements** Exam II next Friday, Dec 13<sup>th</sup> @ 8:00 am!  
10 am lab section go to 5 KLA; 11 am lab section go to 130 HUE.  
 Discussion-Review this Thursday. Q?

- II. Respiratory Connections** LS ch 12, DC Module 7, SI Fox +...
- A. How do we breathe? LS fig12-12, fig12-25 pp 349-56, 373-8
  - B. Histology LS fig 12-4 pp 347-9, DC fig 7-4 p 54
  - C. Gas exchange LS fig 12-19 pp 362-5
  - D. Gas transport LS tab 12-3 pp 365-70

- III. Physiology of Cigarette Smoking & Vaping**
- A. ANS, autonomic nerves & nicotine? Route of chemicals,...
  - B. Emphysema? 2nd-hand smoke?... LS pp 356, 365
  - C. Physiology of Vaping? Harmless? AHA 2019 Conference +
  - D. UO Smoke-Free since Fall 2012! Help is available!



**BI 121 Exam II is at 8 am on Friday, December 13<sup>th</sup>**

**10 am lab section report directly to 5 Klamath Hall with Tim**

**11 am lab section report directly to 130 Huestis Hall with Bella**

All others except AEC report to 100 Willamette (our lecture hall) for Exam II

Exam II start time for all locations is 8 am!

If you need special assistance for Exam II please contact Pat by sending an

e-mail to [lombardi@uoregon.edu](mailto:lombardi@uoregon.edu)

Best of luck on all exams and papers! ☺