

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: O₂ 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 Huestis near 120 HUE? Estimate grade? Q?
- II. **Blood Chemistry Review** 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
 - H. Peripheral endocrine organs DC pp 109-13, LS pp 513-36
 1. Pancreas (insulin – glucagon see-saw!)
 2. Thyroid
 3. Adrenals

Thanks to you, Courtney, Eli,
Nelson & Katie!



For your effort
& your 🩸 !!

BI 121 Lecture 12

- I. **Announcements** Thanks for your help with blood lab! Great
job! No lab this week. Study for Exam II, Dec 7, Friday, 8 am!
- II. **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
- III. **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

Brain + spinal cord (CNS). What disease involves the basal nuclei? **Protect your head with a helmet!** Bicycle head injury statistics *NHTSA & BHSI, 2014 data*

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

A. Autonomic NS: Branches, neurotransmitters, receptors, actions, fight-or-flight stories ch 7 pp179-85

B. Why are nerve & muscle unique? ch 4 p 71

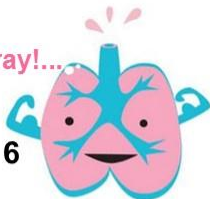
C. How do excitable cells signal? ch 3 pp62-7; ch 4 pp74-83

D. How does the signal cross the nerve-muscle gap? ch 7 p 185-92 fig 7-5 p 190

1. Ca²⁺ bones!...but what else? p 190

2. 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

A. How is skeletal muscle organized? LS fig 8-2, DC fig 12-2

B. What do thick filaments look like? LS fig 8-4, DC fig 12-4

C. How about thin filaments? LS fig 8-5

D. Banding pattern? LS fig 8-3, fig 8-7

E. How do muscles contract? LS fig 8-6, 8-10

F. What's a cross-bridge cycle? LS fig 8-11 +...

G. Summary of skeletal muscle contraction

H. Exercise adaptation variables: **mode, intensity, duration, frequency, distribution, individual & environmental char...**

I. 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 Thurs. **Exam II Fri Dec 7, 8am** Q?

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

A. Why nerve & muscle unique? How do they signal?

LS pp 62-67, 74-83

B. 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

1. Ca²⁺ bones!...but what else? LS p 190

2. 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

A. Muscle types: cardiac, smooth, skeletal LS fig 8-1

B. How is skeletal muscle organized? LS fig 8-2, DC fig 12-2

C. What do thick filaments look like? LS fig 8-4, DC fig 12-4

D. Thin filaments? Banding pattern LS fig 8-5, 8-3, 8-7

E. How do muscles contract? LS fig 8-6, 8-10

F. What's a cross-bridge cycle? LS fig 8-11 +...

BI 121 Lecture 16

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

I. Announcements Notebooks? **Exam II, Dec 7th Friday 8 am.** Review session in class next Thurs. Q?

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

A. Banding pattern? LS fig 8-3, fig 8-7

B. How do muscles contract? LS fig 8-6, 8-10

C. What's a cross-bridge cycle? LS fig 8-11 +...

D. Summary of skeletal muscle contraction

E. Exercise adaptation variables: **mode, intensity, duration, frequency, distribution, individual & environmental char...**

F. Endurance vs. strength training continuum? fiber types...

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

A. Steps of respiration? External vs. cellular/internal?

LS fig 12-1 pp 345-347

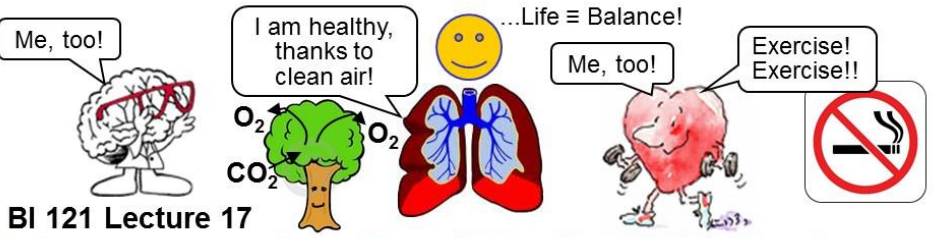
B. Respiratory anatomy LS fig 12-2 p 347, DC, Fox +...

C. Histology LS fig 12- 4 pp 347-349, DC

D. How do we breathe? LS fig 12-12, fig 12-25 pp 349-356,

pp 373-378



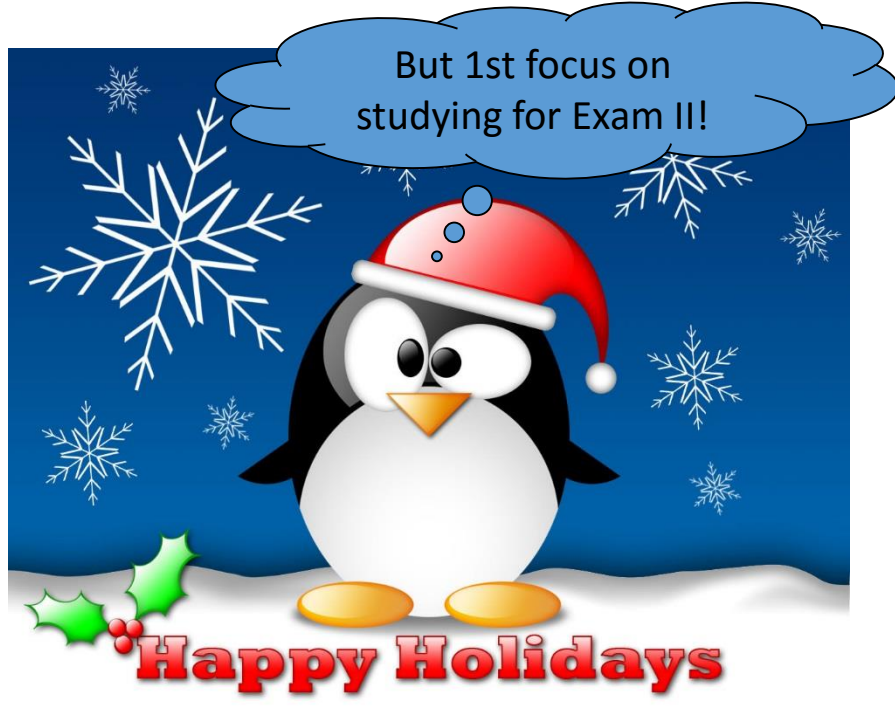


BI 121 Lecture 17

I. Announcements Exam II next Friday, Dec 7th @ 8:00 am!
12 n lab section go to 5 KLA; 1 pm lab section go to 13 KLA;
2 pm lab section go to 21 KLA. Discussion-Review Thurs. Q?

- II. Respiratory System** LS ch 12, DC Module 7, SI Fox +...
- A. Respiratory system anatomy LS fig 12-2 p 347, DC, SI Fox+...
 - B. Histology LS fig 12-4 pp 347-9, DC fig 7-4 p 54
 - C. How do we breathe? LS fig12-12, fig12-25 pp 349-56, 373-8
 - D. Gas exchange LS fig 12-19 pp 362-5
 - E. Gas transport LS tab 12-3 pp 365-70

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



BI 121 Exam II is at 8 am on Friday, December 7th

12 n lab section report directly to 5 Klamath Hall

1 pm lab section report directly to 13 Klamath Hall

2 pm lab section report directly to 21 Klamath Hall

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

Best of luck on all exams and papers!