

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 to 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 Chem Lab today!** Fun day!!
Personal data!!! If you haven't already done so, please review Lab 5 in LM & in e-mail. Thanks sincerely!
Lab Manual & Exam I remaining returns. Q from last t?

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

III. Endocrine Connections

- A. Hypothalamus-Anterior pituitary intimate circulation
- B. Anterior pituitary hormones DC pp 105-7, LS pp 502-6
- C. GH: Body builder's dream? Fountain of youth?
LS pp 506-11
- D. Peripheral endocrine organs
DC pp 109-13, LS pp 513-36
 - 1. Pancreas (insulin – glucagon see-saw!)
 - 2. Thyroid
 - 3. Adrenals

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

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. 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

BI 121 Lecture 12

Thanks to you, Katie, Kelsey,
Steph, Janelle & Patrick!



For your effort
& your 💧 !!

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

II. Endocrine Connections Peripheral Endocrine Organs...

Adrenals. Q? DC Module 13 p 109-13, LS ch 17 pp 513-36

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?

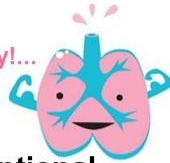
II. CNS Connections Myelin, brain + spinal cord (CNS) **Protect your head with a helmet!** Bicycle head injury statistics *NHTSA & BHSI, 2014 data*

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

- 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
 - Ca²⁺ bones!...but what else? p 190
 - What do black widow spider venom, botulism, curare & nerve gas have in common? Botox pp 189-92

BI 121 Lecture 15

More personal data today! Hooray!...



I. Announcements Civil War Blood Drive!

Lab 6, Pulmonary Function Testing (PFT) + optional notebook check today. Exam II Dec 7 Thursday, 8 am!

II. Skeletal Muscle Structure & Function Connections

Banding pattern, crossbridge cycling, crucial calcium!
Contraction & relaxation LS ch 8, DC Module 12

III. Skeletal Muscle & Other Exercise Adaptations Endurance vs. Strength training, the Energy Continuum LS ch 8 +...

IV. Introduction to PFT Lab 6 Pulmonary Function Testing Lab Manual, pp 6-1 thru 6-8

V. 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

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



BI 121 Exam II!



BI 121 Lecture 14

I. Announcements Last Lab 6, Pulmonary Function Testing + Optional notebook ✓ this Thurs. **Exam II, Dec 7, 8 am Q?**

II. Nervous System Connections LS 7

- How does the signal cross the nerve-muscle gap?
ch 7 p 185-92 fig 7-5 p 190
- What do black widow spider venom, botulism/Botox, curare & nerve gas have in common? LS fig 7-5 p 190

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

- Muscle types: cardiac, smooth, skeletal LS fig 8-1 pp194-6
- 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 +...
- Summary of skeletal muscle contraction, videos courtesy David Bolinsky, *XVIVO* & Malcolm Campbell, *Davidson C.*
- Exercise adaptation variables, strength vs. endurance tr.

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



BI 121 Lecture 16

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

II. Muscle Adaptation Connections LS ch 8, DC Module 12

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
- Gas exchange LS fig 12-19 pp 362-5
- Gas transport LS tab 12-3 pp 365-70

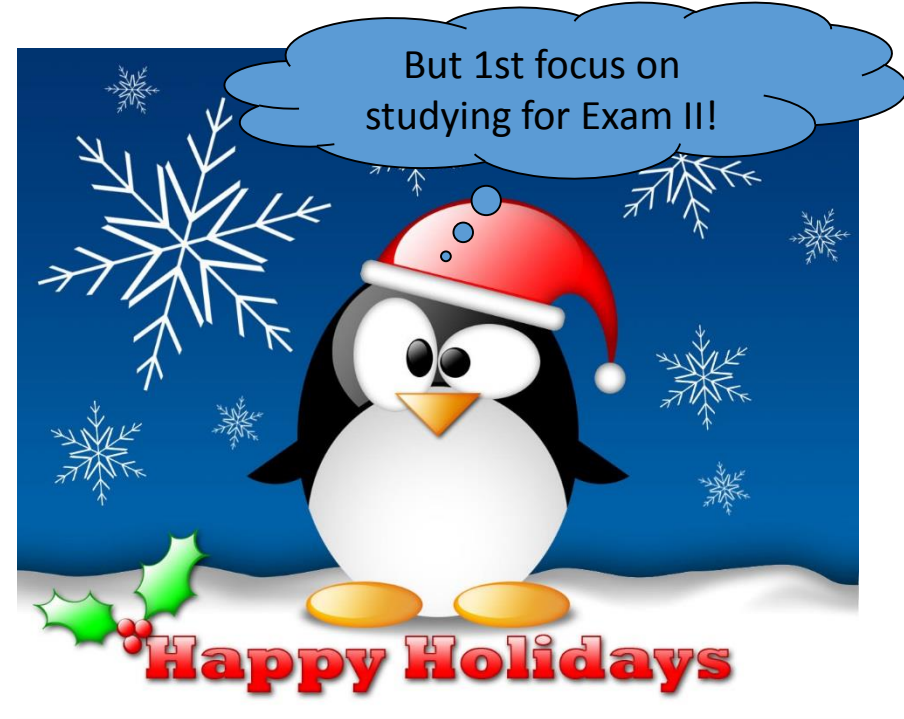
BI 121 Lecture 17

We're so close. Let's
shine on the exam!



- I. Announcements** Exam II Thursday Dec 7th
@ 8:00 am! 12 n lab section report to 112 HUE,
1 pm lab section 130 HUE. Others, except AEC, here!
Discussion-Review, this Thursday, here in 100 WIL!
- II. Respiratory System Connections** LS ch 12, DC Module 7+
LS fig 12-5, 12-6, 12-8, 12-9, pp 349-52
 - A. Pulmonary membranes?
 - B. What happens in a gunshot wound or impalement injury? Pneumothorax?
- III. Physiology of Cigarette Smoking** LS + DC + ACS +...
 - A. ANS, autonomic nerves & nicotine? Chemical route
 - B. Emphysema? 2nd-hand smoke?... LS p 356, 365
 - C. UO Smoke-Free since Fall 2012! Help is available!

But 1st focus on
studying for Exam II!



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

12 n lab section report directly to 112 Huestis Hall

1 pm lab section report directly to 130 Huestis Hall

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

Exam II start times 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!