

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 fig+tab 11-1
Cell origin - bone marrow. What's in plasma? p 316
 - B. Red blood cells/erythrocytes: O_2 carrying pp 317-8
Normal flexible vs fragile sickle cell fig 11-5 p 320
 - C. White blood cells/leukocytes: defense/immunity
differential + general functions pp 326-30 fig 11-1
 - D. Platelets/thrombocytes: clotting pp 321-2 fig 11-6
- III. **Blood Chemistry Lab: Basics** LM + LS ch 11 & 17
 - A. What's blood typing? ABO System ch 11 LS pp 341-4
Rhesus factor? Erythroblastosis fetalis? LS p 343
 - B. *Physiology in the News*: Eat right for your type?
 - C. What's blood glucose? Diabetes? LS ch 17 pp 560-73
 - D. Questions about blood chem lab?

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** LS ch 17, DC Module 13, SI Fox +...
 - A. Endocrine/hormone classes ~ LS pp 495 - 6
 - B. Hypothalamus (Master) – Pituitary (subcontroller)
DC pp 104-6 + LS pp 499-506
 - C. Posterior pituitary+hormones DC p 108, LS fig 17-4 p 502
 - D. Anterior pituitary hormones DC pp 105-7, LS pp 502-6
 - E. Endocrine feedback + reflexes LS p 540 fig 17-7
 - F. GH: Body builder's dream? Fountain of youth?
LS pp 506-10, fig 17-10, 17-11
 - G. Peripheral endocrine organs DC pp 109-13, LS pp 513-36
 1. Pancreas 2. Thyroid 3. Adrenals

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 Connections** LS ch 11 p 303, ch 17 pp 525-36
Erythroblastosis fetalis, diabetes, insulin, glucagon
- 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, Holly, Hannah,
& Erik!



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, Wed, 8 am!
- II. **Endocrine Connections** GH + Peripheral Endocrine Organs
DC Module 13 p 104-113, LS pp 506-25 fig 17-18, 17-19 +...
- 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



Fun lab with personal lifetime data!

Yes!!



BI 121 Lecture 15

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

II. Introduction to PFT Lab 6 Pulmonary Function Testing

III. Neuromuscular Junction Connections LS fig 7-5 p 190

IV. Muscle Contraction+Adaptation DC Mod 12 + LS

- Review of structure + banding pattern? LS fig 8-1 thru 8-5
- How do muscles contract? LS fig 8-6, 8-10, 8-11 +...
- Summary of skeletal muscle contraction with videos
Courtesy David Bolinsky, *XVIVO* & Malcolm Campbell, Department of Biology, Davidson College, NC +...
- Exercise adaptation variables LS ch 8 pp 210-214
mode, intensity, duration, frequency, distribution of training sessions, individual & environmental factors
- 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 Wed, Dec 7, 8 am Q?**

II. Nervous System Connections LS 7

- Autonomic NS: Branches, neurotransmitters, receptors, actions, fight-or-flight stories ch 7 pp 179-85
- Why are nerve & muscle unique? ch 4 p 71
- How do excitable cells signal? ch 3 pp 62-7; ch 4 pp 74-83
- 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 +...

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



BI 121 Lecture 16

I. Announcements Notebooks? **Exam II, Dec 7th Wed 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 +...

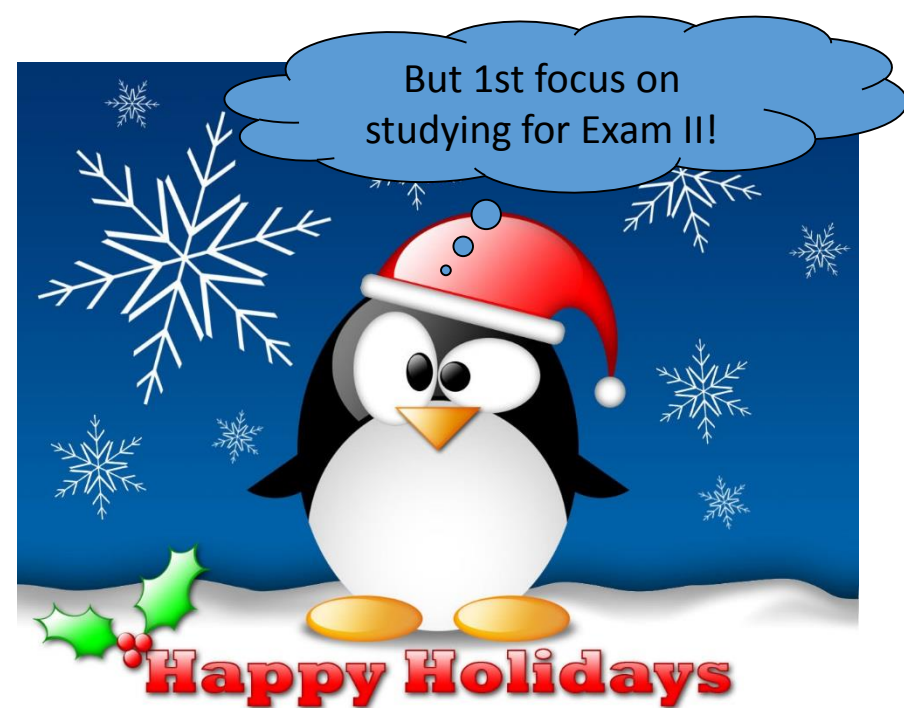
- Steps of respiration? External vs. cellular/internal? LS fig 12-1 pp 345-347
- Respiratory anatomy LS fig 12-2 p 347, DC, Fox +...
- Histology LS fig 12- 4 pp 347-349, DC
- How do we breathe? LS fig 12-12, fig 12-25 pp 349-356, pp 373-378
- Gas exchange LS fig 12-19 pp 362-5
- Gas transport LS tab 12-3 pp 365-70

BI 121 Lecture 17

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



- I. Announcements Exam II Wednesday Dec 7th**
@ 8:00 am! 10 am lab section report to 13 KLA,
2 pm lab section 202 CAS. All others here!
Discussion-Review, this Thursday, here in 100 WIL!
- II. Respiratory System Connections** LS ch 12, DC Module 7+
- A. How do we breathe?
LS fig 12-12, fig 12-25 pp 349-356, pp 373-378
 - B. Gas exchange LS fig 12-4, fig 12-19 pp 362-5
 - C. Gas transport LS fig 11-2 p 299, tab 12-3 pp 365-70
 - D. What happens in a gunshot wound or impalement injury? Pulmonary membranes? Pneumothorax?
LS fig 12-5, 12-6, 12-8, 12-9, pp 349-52
- 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!



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

10 am lab section report directly to 13 Klamath Hall

2 pm lab section report directly to 202 Cascade Hall

All others 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!