BI 121 Lecture 9

I. **Announcements**: No lab today! Break for exam week!
   Next R Blood Chemistry. Thanks sincerely for helping us optimize safety by reading ≥ 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: O₂ 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 10

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
   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 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**
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 12

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
   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!
BI 121 Lecture 13

I. **Announcements** No lab today – Study for Exam II!!
   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
   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/Botox, curare & nerve gas have in common? Botox pp 189-92

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
   A. Review of structure + banding pattern? LS fig 8-1 thru 8-5
   B. How do muscles contract? LS fig 8-6, 8-10, 8-11 +...
   C. Summary of skeletal muscle contraction with videos
      Courtesy David Bolinsky, XVIVO & Malcolm Campbell, Department of Biology, Davidson College, NC +...
   D. Exercise adaptation variables LS ch 8 pp 210-214
      mode, intensity, duration, frequency, distribution of training sessions, individual & environmental factors
   E. Endurance vs. Strength training continuum? fiber types...

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
   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
   E. 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
   A. Muscle types: cardiac, smooth, skeletal LS fig 8-1 pp194-6
   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

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
   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
   E. Gas exchange LS fig 12-19 pp 362-5
   F. Gas transport LS tab 12-3 pp 365-70
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!