ENDOCRINOLOGY (summer 2017)
11:067:450.H1; 3cr; index #: 05343; Summer 2017; SERC r111, 8-10:30AM;
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LECTURE/DATE    TOPIC & CHAPTERS IN TEXTBOOK

01 Mon July 10  -Introduction, Homeostasis and Overview of the course as a whole 1-2
02 Tue 11      -Mechanism of Hormone Action for Steroids and Thyroid Hormones 1-2
03 Wed 12      -Mechanism of Hormone Action for Peptide, Protein, Neurohormones 1-2
04 Thu 13      -Hypothalamus, Hypophysiotropic Neurohormones, Anterior Pituitary 1-2
05 Mon 17      -Hypothalamus, Posterior Pituitary Neurohormones, Water Metabolism 1-2
06 Tue 18      -Homeostasis and the Endocrinology of Ca Regulating Hormones 1-2,10
07 Wed 19      -Homeostasis, Endocrinology of Thyroid Gland and Thermogenesis 1-3,10
08 Thu 20      REVIEW - Material from lecture #1 through lecture #7 1-3,10
09 Mon 24      EXAM #1 - 33% of final grade (lectures #1 through #8) 1-3,10
10 Tue 25      -Endocrinology of Gastrointestinal System and Hormone Families 1-6
11 Wed 26      -Endocrinology of Endocrine Pancreas and Diabetes Mellitus 1-7
12 Thu 27      -Endocrinology of Growth, its Hormones and its Growth Factors 1-8,11
13 Mon 31      -Endocrinology of Adrenal Medulla, Catecholamines and Stress 1-10
14 Tue Aug 01  -Endocrinology of Glucocorticoids and the Control of Metabolism 1-8
15 Wed 02      -Endocrinology of Mineralocorticoids, RAS System and Blood Pressure 1-10
16 Thu 03      REVIEW - Material from lecture #10 through lecture #15 1-11
17 Mon 07      EXAM #2 - 33% of final grade (lectures #1 through #16) 1-11
18 Tue 08      -Integration: Endocrinology of Sex Development / Reproduction 1-14
19 Wed 09      -Integration: Endocrinology of Menstrual Cyclicity / Contraception 1-14
20 Thu 10      -Integration: Endocrinology of Biological Rhythms / Feedforward 1-14
21 Mon 14      -Integration: Endocrinology of Ingestive Behaviors / Appetite 1-14
22 Tue 15      REVIEW - Material from lecture #18 through lecture #21 1-14
23 Wed 16      EXAM #3 - 33% final grade (lectures #1 through #22) 1-14

Lecture and office hours: Lectures are Mon, Tue, Wed, Thu from 8:00 to 10:00 AM in the SERC Bldg, r111, Busch Campus. The instructor and TAs will hold recitation/office hours, from 10 to 10:30 AM, Mon through Thu in the same room.

Exams and grades: There are no make-up exams. If a student has a valid problem with an exam date, this must be discussed with the course instructor BEFORE the exam. If a student fails to do so, and does not show up to take the exam at the appointed time, at the discretion of the instructor, a grade of "F" might be assigned for the missing exam. Students will have the opportunity to review exams a week after each exam. The letter and % grade equivalence, for a final 75% class average corrected grade, are as follows: A=91-100%; B+=86-90%; B=81-85%; C+=76-80%; C=71-75%; D=61-70%; F=0-60%.


Preparing for this course: This is an intense course that will cover all of the bodily systems. There will be a large amount of material to understand. It is expected that all students in the class have a solid foundation from material they studied in biology and chemistry, as this information will serve as the foundation to discuss various physiological systems / processes.

Type of exams questions: They will be multiple choice and true / false questions, as the followings:

Amine hormones
a. originate from tyrosine an aminoacid
b. include some of the sex hormones
c. all contain iodine in their molecule
da. all of the above

Steroids and thyroid hormones could increase the number
of membrane receptors, which might increase production
of cyclic nucleotides, leading to an increase cellular
responses to hormones acting on the plasmalemma.
a. true  b. false
The recitation section of the Endocrinology course

In the first recitation meeting we will review main concepts about active learning. The goal of the recitation questions is to review and pinpoint the main “take home message” of the lecture topics. During the summer session, students do not have to submit answers to these recitation questions since they are presented only as discussion topics for the recitation meetings. The short 6 weeks summer session does not allow enough time for students to spend the considerable amount of time needed to edit answers to these questions, as during the fall course, but they are a good guide for students to study the course material. The answer for each recitation question has four sub-questions, as follows:

a) Name the structure and the function on which your overall answer will be based? Be as specific as you can in delimiting the boundaries of your example (the most important part of your answer, since the following b, c, & d sub-questions are based on your answer to this first sub-question, a).

b) Why do you think that your structure and your function are related? Support your contention based on 3 lines of evidence on the chemistry, physics, anatomy or physiology involved in your example.

c) Which are the levels of organization involved in your example? Cite events occurring at its main level of organization and indicate how they relate to the whole body homeostatic level.

d) Which are the main feedback mechanisms involved in your example (cite at least two)? Expand on one of them and indicate an absolute requirement for that feedback to be operational.

These answers will be discussed at the end of each lecture. This discussion can be used to write summary answers of the lecture material. Please notice that these answers will not be found in your book as “copy and paste” answers. What they have in common is that they require an understanding of the lecture topic to be able to answer them.

The recitation questions are as follows:

**Question #01: Hormone action of a lipo-soluble ligand**
Select a homeostatic event and / or physiological system involving a lipo-soluble ligand as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).

**Question #02: Hormone action of a water-soluble ligand**
Select a homeostatic event and / or physiological system involving a water-soluble ligand as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).

**Question #03: The hypothalamic pituitary unit**
Select a homeostatic event and / or physiological system involving an hypothalamic – pituitary unit as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).

**Question #04: The endocrinology of Ca and thyroid control**
Select a homeostatic event and / or physiological system involving calcium OR thyroid regulation as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).
Question #05: The ANS and the GI hormones
Select a homeostatic event and / or physiological system involving BOTH the autonomic nervous system AND a gastrointestinal hormone as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).

Question #06: Control of intermediary metabolism
Select a homeostatic event and / or physiological system involving the regulation of intermediary metabolism basic processes (e.g. glycogenesis, gluconeogenesis, lipolysis) as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).

Question #07: Growth and blood pressure regulation
Select a homeostatic event and / or physiological system involving growth OR blood pressure regulation as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).

Question #08: Control of the onset of puberty, cyclicity and aging
Select a COMMON homeostatic event and / or physiological system involving the regulation of the onset of puberty, cyclicity AND aging as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).

Question #09: Control of food intake and reproduction
Select a homeostatic event and / or physiological system involving food intake AND reproduction as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).

Question #10: Rhythms, reproduction, immunity and aging
Select a homeostatic event and / or physiological system involving rhythms, reproduction, immunity AND aging as your structure, in which you can show the importance of structure / function relationship, levels of organization, and feedback control. Your answer must follow the outline presented in the introduction (sub-questions a, b, c, d, see above).