

PNB 3270/5270 (MCB 3210/5210)
Molecular Endocrinology
Fall 2015

Credit Hours: 3

Lecture Time: 12:30 p.m. to 1:45 p.m. (Tu, Th): Location: TLS Rm 111

Instructor: Professor Jianjun Sun (PBB Rm 117A; Tel: 860-486-4666); E-mail:

Jianjun.Sun@uconn.edu

Recommended Textbook: Vertebrate Endocrinology (5th edition) by David O. Norris, Academic Press.

Many original research papers will be assigned in class.

Course Website: Husky CT

Course Grade Determination:

For MCB/PNB 3210: The course grade will be determined by averaging the scores of two exams (mid-term and final).

For MCB/PNB 5210: The course grade will be determined by counting the average scores of two exams (weight 70% of the course grade) and the grade of one in-class presentation (50 min)/essay (25 pages) (weight 30% of the course grade).

Schedules of the exams:

Mid-term exam:

Final exam: In the final exam week (to be announced by Registrar's office)

First class meeting is scheduled on August 31st (Monday). Students are encouraged to download the lecture slide materials (in pdf file) from the website and bring the printed materials to the lecture.

Syllabus of the Course

Molecular endocrinology is defined as studies on the structures, synthesis and the molecular actions of bioregulators in vertebrates and invertebrates.

(I) Lecture topics:

1. Introduction: concept of bioregulation and bioregulators
2. Methods of studying bioregulators
3. Receptors (nuclear and membrane receptors) and molecular actions of bioregulators
4. Bioregulators in the hypothalamus-pituitary axis that regulate somatic growth
5. Bioregulators in the hypothalamus-pituitary-gonad axis that regulate reproduction
6. Bioregulators in the hypothalamus-pituitary-thyroid axis

7. Bioregulators in the hypothalamus-pituitary-adrenal axis
8. Bioregulators involved in feeding, digestion and metabolism
9. Bioregulators of calcium and phosphate homeostasis

(II) Graduate Student Presentations/Essays

1. Molecular actions of IGF-I
2. Molecular actions of sex steroid hormones
3. Molecular actions of LH
4. Molecular action of growth hormone
5. Molecular action of myostatin in muscle development
6. Cross talks among different signal transduction pathways
7. Hormonal control of glucose homeostasis in the circulation
8. Molecular actions of prolactin
9. Molecular basis of obesity
10. Molecular basis of ovulation

(III) Lecture Schedules:

Date	Topics	Reading (Norris)	PDF
8/31 Mon	Introduction	1-22	(I)
9/02 Wed	Methods for studying bioregulators	23-40	(II), RA (II)
9/07 Mon	No Class (Labor day)		
9/09 Wed	Methods for studying bioregulators	23-40	
9/14 Mon	Methods for studying bioregulators	41-91	(III), RA (III)
9/16 Wed	Synthesis & metabolism of bioregulator	41-91	(IV), RA (IV)
9/21 Mon	Mechanisms of action of bioregulators	41-91	
9/23 Wed	Mechanisms of action of bioregulators	41-91	
9/28 Mon	Mechanisms of action of bioregulators	41-91	
9/30 Wed	Mechanisms of action of bioregulators	41-91	
10/05 Mon	Hypothalamus-pituitary axis	93-150	(V), RA (V)
10/07 Wed	Hypothalamus-pituitary axis	93-150	
10/12 Mon	Hypothalamus-pituitary axis	93-150	
10/14 Wed	Exam I		
10/19 Mon	Hypothalamus-pituitary-thyroid	207-230	(VI), RA(VI)
10/21 Wed	Hypothalamus-pituitary-thyroid	207-230	
10/26 Mon	Hypothalamus-pituitary-adrenal gland	261-290	(VII), RA(VII)
10/28 Wed	Hypothalamus-pituitary-adrenal gland	261-290	

11/02 Mon	Hypothalamus-pituitary-reproductive gland	317-374	(VIII), RA (VIII)
11/04 Wed	Hypothalamus-pituitary-reproductive gland	317-374	
11/09 Mon	Hypothalamus-pituitary-reproductive gland	317-374	
11/11 Wed	Hypothalamus-pituitary-reproductive gland	317-374	
11/16 Mon	Regulation of Feeding, Digestion, and Metabolism	443-481	
11/18 Wed	Regulation of Feeding, Digestion, and Metabolism	443-481	
11/23 Mon	Thanksgiving Recess		
11/25 Wed	Thanksgiving Recess		
11/30 Mon	Bioregulation of calcium and phosphate		
12/02 Wed	Graduate student presentation		
12/07 Mon	Graduate student presentation		
12/09 Wed	Graduate student presentation		

Exam I covers materials from

Final Exam covers materials from