Cellular and Molecular Endocrinology PHYO 5104 UAMS Fall 2017

Course Director: Rosalia C.M. Simmen, Ph.D.
Email: simmenrosalia@uams.edu
Phone: 501-526-7575
Office Hours: TBA, email-accessible

Class Schedule: Tuesday/Thursday, 9:00-10:30 A.M.; Pasley Conference Room, Biomed 2 (242-2)

Course Description: This graduate course combines didactic lectures and in-class discussions of scientific papers focusing on the fundamentals of hormone action and signal transduction at the cellular and molecular levels. Emphasis is on conceptual understanding and critical thinking of key mechanisms and experimental approaches in cellular and molecular endocrinology with applicability to other areas of biology.

Prerequisites: NBDS5111, BIOCH5101 or consent of Instructor.

Readings: There is no required textbook. Instructors will post their lecture slides in Blackboard in advance of each class. Reading materials will be primary research papers to be assigned by each Instructor and provided to students at least one week prior to class.

Examinations: There will be three take-home, open book exams, to be handed out as scheduled and due to the Course Director by 5 p.m, 2 days after the scheduled exam date. The format of the exam will be short answer/essay with focus on critical thinking and experimental design. Points will be distributed equally for each lecture (10 points/lecture). Each exam is worth 80 points.

Student Presentations: Each student will select a primary journal article focused on a signaling pathway in an endocrine system. The student's selected paper should be submitted by November 22, 2017 to the Course Director who will approve the selection for presentation. Students will give a 20 min oral presentation on their critical review of the paper. The critical review will highlight the key experiments and results drawn from the paper, and pose a valid question for developing new directions for future research.

Grading: Course grades will be based on the following: Exam 1-80 points; Exam 2-80 points; Exam 3-80 points; Presentation-20 points. Grades will be scaled with the class average set at B.

Lecture Schedules, Topics and Instructor

Dates	Lecture Topic	Instructor
8-22	Nuclear Receptor Signaling-Estrogen Receptor	R Simmen
8-24	Nuclear Receptor Signaling-Progesterone/Gluc Receptor	R Simmen

8-28	Nuclear Receptor Signaling-Androgen Receptor	A Diekman
8/30	Nuclear Receptor Co-Regulators	R Simmen
9-5	Serine and Tyrosine Kinases	H Zhao
9-7	G-protein Coupled Receptors	G Baldini
9-12	Calcium Signaling	P Palade
9-14	Cytokines and Jak-Stat Signaling	P Drew
9-19	**EXAM 1 (Take home, due 9-21)**	
9-21	Wnt-Signaling (Bone)	R Morello
9-26	Notch and Hedgehog Signaling (Stem Cells)	M Macnicol
10-3	Neuroendocrine Hormones-Hypothalamus	G Childs
10-5	Neuroendocrine Hormones- Pituitary	G Childs
10-10	Thyroid Hormone Signaling	A Franco
10-12	Insulin Signaling (Liver and Fat)	K Shankar
10-17	IGF Signaling (Somatic Growth)	F Simmen
10-19	Gut Hormone Signaling	F Simmen
10-24	**EXAM 2 (Take home, due 10-26)**	
10-26	Manipulating Cellular Signaling- CRISPR	V Lupashin
10-31	Manipulating Cellular Signaling-Endocrine Disrupting Chemicals	S Blossom
11-7	Manipulating Cellular Signaling-Altering Receptor Function	KI Varughese
11-9	Integration of Signaling Pathways: Puberty	A Odle
11-14	Integration of Signaling Pathways: Parturition	R Simmen
11-16	When Endocrine Signaling Goes Awry: Osteoporosis	C O'Brien
11-21	When Endocrine Signaling Goes Awry: Endocrine Aspects of Gynecologic Cancers	K Zorn

11-28	When Endocrine Signaling Goes Awry: Obesity	Kartik Shankar
12-5	STUDENT PRESENTATIONS	
12-7	STUDENT PRESENTATIONS	
12-12	**EXAM 3 (Take home, due 12-14)**	