

**BCH 6206: ANALYSIS OF METABOLIC CONTROL
FALL 2019**

Lecture Schedule

M, W, F - Period 2 (8:30 AM - 9:20 AM), Room R3-265

In this course, we will discuss metabolism at a more advanced level than in the introductory courses, with a focus on "how we know, what we know". Students are expected to have performed with a B or better in an introductory course in Biochemistry. Courses such as BCH 4204, CHM 4207, CHM 3218, BCH 3025 or GMS 6001 are considered appropriate introductory courses for BCH 6206.

The text, "Biochemistry" by Voet and Voet (4th Edition), will serve as a general reference. This is available in the Health Science Center Bookstore. Older versions are also acceptable, although the pages of interest may be somewhat different from the 4th edition. Outside reading in primary journals, reviews, and special monographs will be assigned when appropriate. There will be a heavy reliance on class notes throughout the course.

Each lecture title (syllabus is on e-learning in) represents the general area to be covered. The first five weeks or so are devoted to discussing the tools that we use to study metabolism. The second five weeks or so are devoted to signaling, and carbohydrate and lipid catabolism. The final five weeks are devoted to selected topics in lipid/steroid synthesis, and amino acid and nucleic acid metabolism.

EXAMINATION SCHEDULE

There will be three (3) - three hour examinations. All three will be composed of essay, short answer, and other question types. Reviews will be scheduled throughout the semester.

				<u>Room</u>
Tuesday	10/1	6:00 - 9:00 PM	(Lectures 8/21 - 9/25)	(C1-4)
Tuesday	10/29	6:00 - 9:00 PM	(Lectures 9/27 - 10/25)	(C1-4)
Monday	12/9	9:00 AM - 12:00 PM	(Lectures 10/28 - 12/4)	(C1-7)

CORE INSTRUCTORS

Susan Frost, Ph.D. Professor (Course Director)	R3-216A	sfrost@ufl.edu	392-3207
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E-learning in Canvas: <http://lss.at.ufl.edu>

Click on Canvas and enter your gatorlink user name and password; go to BCH 6206.

2019 Tentative Lecture Topics for BCH 6206

	Date	Topic	Instructor
WEEK 1	W 8/21	Tools of Metabolism	Frost
	F 8/23	Membrane structure: lipid	Frost
WEEK 2	M 8/26	Membrane structure: proteins	Frost
	W 8/28	Facilitate nutrient transport	Frost
	F 8/30	Active nutrient transport	Frost
WEEK 3	M 9/2	Labor Day, no classes	
	W 9/4	Enzyme Kinetics	Purich
	F 9/6	Enzyme cooperativity and allosteric transitions	Purich
WEEK 4	M 9/9	Metabolic Inhibitors I: Rational Design	Purich
	W 9/11	Metabolic Inhibitors II: Pathway analysis	Purich
	F 9/13	Radioactive tracers: Pathway kinetics & protein turnover	Purich
WEEK 5	M 9/16	Metabolic Control Analysis: Pathway flux, pacemakers, etc.	Purich
	W 9/18	Introduction to metabolomics: Basic concepts	Merritt
	F 9/20	Metabolomics techniques: Instrumentation	Merritt
WEEK 6	M 9/23	Metabolomics data, forms, formats, and uses	Merritt
	W 9/25	Metabolomics research overview	Merritt
	F 9/27	Signaling: G-protein receptors	Zarrinpar (this material and following lectures will be on the 2nd exam)
WEEK 7	M 9/30	Signaling: tyrosine kinase receptors	Zarrinpar
	Tu 10/1	First Exam (6-9 PM) (includes the first 15 lectures: 8/21-9/25)	

	Date	Topic	Instructor
	W 10/2	Signaling: lipid receptors	Frost
	F 10/4	Homecoming, no classes	
WEEK 8	M 10/7	Lipid rafts as signaling platforms	Frost
	W 10/9	Nutrients as signaling molecules	Frost
	W 10/11	Regulation of glycolysis	Frost
WEEK 9	M 10/14	Regulation of gluconeogenesis	Frost
	W 10/16	Regulation of glycogen turnover	Frost
	F 10/18	Hexosamine biosynthesis and function	Frost
WEEK 10	M 10/21	Regulation of the TCA cycle	Frost
	W 10/23	Energy conservation	Frost
	F 10/25	F ₁ F ₀ ATP synthase	Cain
WEEK 11	M 10/28	Circadian rhythms and central pathway regulation	Gumz (this and following lectures will be on the 3rd exam)
	T 10/29	Second Exam (6-9 PM) (includes 14 lectures: 9/27-10/25)	
	W 10/30	Fatty acid oxidation	Gumz
	F 11/1	Fatty acid biosynthesis	Gumz
WEEK 12	M 11/4	Prostaglandin metabolism	Gumz
	W 11/6	Cholesterol metabolism	Gumz
	F 11/8	Nitrogen homeostasis	Purich
WEEK 13	M 11/11	Veteran's Day, no classes	
	W 11/13	Lipoprotein metabolism	Gumz
	F 11/15	Amino acid metabolism: part 1 Assimilation & degradation	Purich
WEEK 14	M 11/18	Amino acid metabolism: part 2 Urea cycle	Purich
	W 11/20	Amino acid metabolism: part 3 Formation of nonessential AA's	Purich
	F 11/22	Amino acid metabolism: part 4 Specialized AA's and heme biosynthesis	Purich

	Date	Topic	Instructor
WEEK 15	M 11/25	Purine biosynthesis, turnover, and salvage	Purich
	W-F 11/27-29	Thanksgiving Holiday, no classes	
WEEK 16	M 12/2	Pyrimidine biosynthesis, One-carbon metabolism, & ribonucleotide reductase	Purich
	M 12/4	Amino Acid and Nucleotide Homeostasis	Purich
WEEK 17	M 12/9	Third Exam (9AM-12PM) (includes 14 lectures:10/28-12/4)	