## Faculty:

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<u>General course information</u>: This course will utilize the D2L course management system. You must be officially registered in the course to access the D2L site. Instructors will post lecture notes, assigned papers, and other relevant material on this site. The lecturers will assume that students have a solid foundation in understanding basic principles of biochemistry and molecular biology. For this reason, BMB801 is strongly recommended as a background for the course.

**Overall objectives of the course:** This course is intended to provide an advanced treatment of key concepts in signal transduction and metabolic regulation. Attention will be focused on general themes that are expected to dominate future research in a particular area. The choice of lecture topics is also intended to provide students with an appreciation of the similarities and differences in signal transduction systems found in diverse organisms, including animals, yeast, plants, and bacteria.

**Examinations and Grading:** There will be four examinations: (I) Monday, Feb. 6, 2016 at 7:00-9:00 p.m., and covering material Jan. 9 through Feb.3 (Ferguson-Miller, Wang) (110 pts.); (II) Open book takehome exam due Monday March 13, 2016, and covering material from Feb. 6 through Feb 24 (Howe) (90 pts.); (III) Open book take-home exam due April 3, 2016, and covering material from Feb 27 through March 31 (120 pts.); and (IV) Open book take-home exam due May 5 and covering material from April 3 through April 28 (total 120 pts) (Martinez-Hackert, 30 pts; Howe, 90 pts). Final grades will be computed by summing grades (total 440 pts) from each examination.

## Instructors:Ducat, Ferguson-Miller,Location:Rm. 111Biochemistry (BM)DateInstructor

Date	Instructor	Торіс		
M 1/9	Ferguson-Miller	Lipids and Membranes		
W 1/11	<b>Ferguson-Miller</b>	Membrane structure/asymmetry		
F 1/13	<b>Ferguson-Miller</b>	Membrane protein organization		
M 1/16		Martin Luther King, Jr. Day - no classes		
W 1/18	Ferguson-Miller	Phospholipids		
F 1/20	Ferguson-Miller	Sphingolipids and inositol lipids		
M 1/23	Ferguson-Miller			
W 1/25	Wang	Phospholinases		
$F \frac{1}{27}$	Wang	Synthesis of eicosanoid hormones		
M 1/30	Wang	Leukotrienes and prostaglandins		
W 2/1	Wang	Prostacycling and thromboyangs		
F 2/3	Wang	Nitrie ovide signaling		
r 2/3	vv ang			
First Even Monday February 6 7:00 n m (1/9 through 2/3 material)				
First Exam Monuay, February 0 7.00 p.m. (1/9 through 2/5 material)				
M 2/6	Howe	Ligand-receptor interactions		
W 2/8	Howe	G protein-coupled receptors I		
F 2/10	Howe	G protein-coupled receptors II		
M 2/13	Howe	Structure and function of trimeric G proteins I		
W 2/15	Howe	Structure and function of trimeric G proteins II		
F 2/17	Howe	Regulation of G protein signaling I		
M 2/20	Howe	Regulation of G protein signaling II		
W 2/22	Howe	Nuclear receptors		
F 2/24	Howe	NK-kB signaling		
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Second Exam Take home exam due Monday, March 6 by 5:00 pm (2/6 through 2/24 material)				
M 2/27	Ducat	TBD		
W 3/1	Ducat	TBD		
F 3/3	Ducat	TBD		
1 3/5 3/6_10	Ducut	SPRING BREAK		
M 3/13	Ducat	Quorum Sensing I		
W 3/15	Ducat	Quorum Sensing I		
F 3/17	Ducat	Interspecies sensing and communication		
F 3/17 M 3/20	Ducat	PII and Carbon/Nitrogen balance I		
WI 3/20 W/ 3/22	Ducat	PII and Carbon/Nitrogen balance I		
VV J/44 E 2/24	Ducat	I in and Calibour Microsoft balance II Ligand-gated ion channels I		
r 3/24 M 2/27	Ducat	Ligand-gated ion channels I		
$\frac{1}{2} \frac{3}{2} \frac{3}$	Ducat	Liganu-gaitu IVII Chamicis II Conservation and modularity in signal transduction nothways		
VV 3/29 E 2/21	Ducat	Figure through modularity of signal transduction pathways		
г 5/31	Ducat	Engineering un ough mountarity of signal transuuction pathways		

Take home exam due Monday, April 3 by 5:00 pm (2/27 through 3/31 material)

## **BIOCHEMISTRY 802**

Third Exam

*Metabolic Regulation & Signal Transduction* <u>Instructors</u>: Ducat, Ferguson-Miller, Howe, Martinez-Hackert, Wang <u>Location</u>: Rm. 111 Biochemistry (BMB) <u>Spring 2017</u>

M,W,F 10:20-11:10 a.m.

M 4/3 W 4/5 F 4/7 M 4/10 W 4/12 F 4/14 M 4/17 W 4/19 F 4/21 M 4/24 W 4/26 F 4/28	Martinez-Hackert Martinez-Hackert Martinez-Hackert Howe Howe Howe Howe Howe Howe Howe Howe	TGF-β signaling I TGF-β signaling II TGF-β signaling III Kinases in signal transduction I Kinases in signal transduction II Plant receptor kinases Histidine kinases and two-component signaling pathways Photoreceptors Phosphatase-linked receptors Ubiquitin ligase-linked receptors I Ubiquitin ligase-linked receptors II Engineering small-molecule sensors
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Fourth Exam Take-home exam due Friday, May 5 by 12:00 noon (4/3 though 4/28 material).