

BIOL 7063/PLHL 7063**SPRING 2012****Time:** T, Th 3:10- 4:30**Place:** 206 Williams

Instructor: James V. Moroney
Office: 424 Life Sciences Building
Laboratory: 355 Life Sciences Building
Telephone: 578-8561 office, 578-8215 laboratory
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Appointments: Right after class seems like a good time or make an appointment

Text: *Plant Biochemistry 4th Edition* by Heldt and Piechulla, Academic Press

Course Objectives: I have two main objectives in teaching this course. The first is to provide you with enough introductory material that you will be able to attend and understand an advanced research seminar in your area of plant science. Secondly I want to expose you to some new methods and resources that will help you in your thesis or dissertation research. This course will be an introduction to plant biochemistry, specifically about how plants acquire and process nutrients such as CO₂, NO₃⁻, N₂ and SO₄⁻². In addition, we will study how plants utilize these nutrients to make specific products like amino acids and cellulose. The course will also cover metabolic pathways that are unique to plants (chlorophyll biosynthesis for example) and pathways of agronomic importance such as amino acid biosynthesis which are sites of herbicide action. We will cover some recent developments in methodologies which are being used to study plants and their metabolic pathways. Examples include plant transformation, gene regulation, World Wide Web servers and genome initiatives. There will be discussions of recently published papers throughout the semester. One assignment will be given via e-mail.

Grading: There will be two exams and a final exam. All exams will be given in class. Students will also be expected to give one oral critique of recently published paper. Reading of all of these papers and classroom participation in these critiques is required. At the end of the semester, each student is required to write a short paper (about 5 pages) based on a recently published research article selected by the student and approved by the instructor.

Approximate point values:	EXAM I	150 points
	EXAM II	150 points
	Oral presentation	150 points
	e-mail assignment	75 points
	Class discussions	75 points
	Written paper	150 points
	FINAL EXAM	250 points

DATES	TOPIC	CHAPTERS
Jan 17 & 19	Introduction, sign-up & photosynthesis	1 and 2
Jan 24 & 26	PS electron flow & chemiosmosis	3 and 4
Jan 31 & Feb 2	Photosynthesis and photorespiration	6 and 7
Feb 7 & 9	Photosynthesis and carbohydrates	8 and 9
Feb 14 & 16	Carbohydrates and respiration	5 and 9
Feb 21	Mardi Gras	
Feb 23	Nitrogen metabolism	10
Feb 28	Exam I (150 points)	
Mar 1	Nitrogen metabolism	11
Mar 6 & 8	Amino acid metabolism	10, 11, 12
Mar 13 & 15	Sulfur and storage proteins	13 and 14
Mar 15	E-mail assignment due	
Mar 20 & 22	lipids	15
Mar 27 & 29	Lipids & isoprenes	15 & 16
Apr 3	Isoprenes	17
Apr 5	Exam II (150 points)	
Apr 10 & 12	Spring Break	
Apr 17 & 19	Secondary metabolism	17 and 18
Apr 24 & 26	Secondary metabolism	18
May 1 & 3	Hormone biosynthesis	19
May 3	Paper due	
May 7	FINAL EXAM (250 points)	
	3:00 pm - 5:00 pm in our classroom	