



BIOLOGY 3024

CRN 20917

Spring 2023

Revised Syllabus

PLANT PHYSIOLOGY (LECTURE)*

CRN 20917: M W 10:00 AM - 12:50 PM

257 HOH (Lab Annex Building) and (maybe) Zoom

<https://bidlack.net/> or <https://www.metabolism.net/bidlack/>

<https://www3.uco.edu/centraldirectory/profiles/2120>

Dr. Jim Bidlack

301B HOH (Howell Hall - Office)

255 HOH (Lab Annex Building - LAB)

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Office Hours: MTWRF 1:00 - 2:00 PM
or by appointment

***All students must attend PLANT PHYSIOLOGY LAB. It also meets Mondays and Wednesdays from 10:00 AM to 12:50 PM.**

PLANT PHYSIOLOGY: This course provides an introductory investigation of vascular plant physiology. Topics include photosynthesis and respiration, secondary metabolism, mineral nutrition, and plant growth regulation. The course consists of three hours lecture and three hours laboratory per week. Prerequisite(s): BIO 1225, 2203, one of the following (3054, 3543, 3703, 3303) and STAT 2103 all with a minimum grade of "C."

<u>Date</u>	<u>Lecture topic</u>	<u>Chapter</u>	<u>Pages</u>
January			
16,18 MW	MARTIN LUTHER KING HOLIDAY		
	Introduction, levels of organization	1	1-10
	Inorganic and organic chemistry		lecture notes
	Biological molecules (Part I)	1,7,8	11-13,180-190, 206-207,226-227
23,25 MW	Biological molecules (Part II)	11,12	292-295,321, 343-346 lecture notes
30,1 MW	Plant cells, anatomy, & physiology Overview of metabolism	1,14	1-49,379-495 lecture notes
February			
6,8 MW	LIGHT RXNS: Photosynth. - light capture	7	171-185
	LIGHT RXNS: Photosystems I and II	7	185-202
13,15 MW	DARK RXNS: CO ₂ fixation - Calvin cycle	8	203-220
	DARK RXNS: C-3, C-4, and CAM plants	8	220-244
20,22 MW	EXAM I		
	Other aspects of photosynthesis	9,10	245-268,269-284
	Additional exam material		

The Central Six: At the University of Central Oklahoma, we are guided by the mission of helping students learn by providing transformative experiences so that they may become productive, creative, ethical and engaged citizens and leaders contributing to the intellectual, cultural, economic and social advancement of the communities they serve. Transformative learning is a holistic process that places students at the center of their own active and reflective learning experiences. A student's major field is central to the learning experience and is a vital part of the "Central Six." All students will be transformed with [Discipline Knowledge](#), [Leadership](#), [Problem Solving \(Research, Scholarly and Creative Activities\)](#), [Service Learning and Civic Engagement](#), [Global and Cultural Competencies](#), and [Health and Wellness](#).

<u>Date</u>	<u>Lecture topic</u>	<u>Chapter</u>	<u>Pages</u>
February (continued)			
27,1	MW Structure & function of enzymes	13	358-361
	Glycolysis	12	317-324
	Krebs (TCA) cycle	12	326-329
March			
6,8	MW Electron transport. & oxid. phosphoryl.	12	329-340
13,15	MW SPRING BREAK		
20,22	MW Pentose phosphate & respiration perspective	12	324-326,340-352
	Nitrogen and sulfur metabolism	13	353-376
27,29	MW Secondary metabolism	23	693-729
	Plant molecular biology	1,2,15	13-25,51-79, 407-445
April			
3,5	MW EXAM II		
	Thermodynamics, water potential	3	83-98
	Xylem transport	4	99-118
10,12	MW Plant nutrition	5,6	119-142,143-168
	Phloem transport and partitioning	11	285-316
	Photosynthesis-transpiration compromise	4,10	110-118,269-284
17,19	MW Growth and development	17,18	477-511,513-552
	Plant growth regulation - Part 1	19,20	553-623
	Plant growth regulation - Part 2	21,22	625-692
24,26	MW EXAM III		
	Photomorphogenesis	16	447-476
	Photoperiodism	20	597-605
	Responses to temperature	9,20,24	255-264,605-608, 736-737
May			
1,3	MW Circadian rhythms, geotropism	5,16,18,20	133-137,467, 528-534,594-597
	Environmental and stress physiology	24	731-761
12	F FINAL EXAMINATION		

The Final Exam is scheduled for Friday, 12 May 2023 at 9:00 - 10:50 AM. *The final exam is scheduled for the last day of finals week. What a great opportunity to study!*

BIOLOGY 3024

PLANT PHYSIOLOGY AND PLANT PHYSIOLOGY LAB

Spring 2023 - CRN 20917

Instructor: Dr. Jim Bidlack

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Internet: <https://bidlack.net/> or <https://www.metabolism.net/bidlack/>

Office (or Zoom): MTWRF 1:00 - 2:00 PM, 301B Howell Hall

Avoid Scheduling Office Visits Just Before Class

Lecture Textbook: Taiz, L., E. Zeiger, I. Moller, and A. Murphy. 2015. Plant physiology and development. 6th edition. Sinauer Associates, Inc., Publishers, Sunderland, MA.

Lab Textbook: Bidlack, J. E. 2023. Plant physiology laboratory manual. 18th edition. As well as exercises from MERLOT (<https://merlot.org>).

Grading: An approximate breakdown of points for the course is as follows:

3 lecture exams @ 100 points each	300
1 final exam @ 100 points	100
Lab reports and article summaries	300

TOTAL POSSIBLE POINTS	700
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Grading scale	Grade	Minimum points needed
90 - 100% of total possible points	A	630
80 - 89% of total possible points	B	560
70 - 79% of total possible points	C	490
60 - 69% of total possible points	D	420
Below 60% of total possible points	F	-

Exam material: A majority of exam material will come directly from lecture. For best performance, read the assigned text before attending lecture and review lecture notes after each class. Study your notes carefully and review the major topics provided in the text prior to each exam.

Exams: *NOTE: Alternative exams (essay exams) may be implemented if there is a resurgence of the COVID-19 Pandemic and instructions will be provided in class.* Semester exams, quizzes, and the final exam will consist of mostly short answer and essay with some fill-in-the-blank, multiple-choice, matching, and true-false questions. All exams count in determining the final grade. Make-up exams will be given only in extenuating circumstances and will usually consist of long essay questions.

Cheating: All work should be that of the student alone. No communication, notes, or wireless devices are permitted during any exam. If the instructor determines that a student has cheated on an exam or any assignment, the student will receive no credit for that exam or assignment and the student's name will be reported to the proper authorities.

For additional student information that accompanies this syllabus, go to the link on the Internet at:

<https://www.uco.edu/academic-affairs/files/aa-forms/StudentInfoSheet.pdf>