

**BIOL 5400      Fall 2024**  
**Plant Physiology and Biotechnology**  
**Credit hours: 4**

**Instructor:**    **Dr. Ansul Lokdarshi**  
 Office: BC 2212  
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**Office (Student) hours (BC2212)**      **Tuesday and Thursday 11 AM-1:30 PM**  
 Or by appointment (please send an email to my valdosta.edu account with “appointment” in the subject line and I will accommodate as time permits).

**Lecture (BS 1024)**      **Tuesday and Thursday**      **9:30 AM – 10:45 AM**  
**Lab (BS 2071)**      **Tuesday and Thursday**      **2:00 PM – 4:50 PM**

**Pre-requisites:** Admission into the Biology Graduate Program.

For rest of the sections follow the undergraduate syllabus guidelines with only exception that Graduate students enrolled in BIOL 5400 will be required to complete the assigned project given by the instructor (Lab Project). The project will encompass application of most of the lab skills taught in the course. Final Rubrics will be posted on BV. An example with grading scheme is provided in the current syllabus.

**Grading:** Your grade will depend on how well you do on the exams, quizzes, and lab report. Expect the following grading scale (based on the total number of points actually assigned):

Grade Calculation		Grade distribution	
Category	Possible weight	Letter	Percentage
Lecture Exam 1	20%	A	89-100%
Lecture Exam 2	20%	B	79-88%
Lecture Exam 3	20%	C	69-78%
Quizzes	5%	D	59-68%
Lab Exam 1	15%	F	≤58%
Lab Report	15%		
Participation	5%		
<b>Total</b>	<b>100%</b>		

**Graduate students will be assigned research projects and will assist in laboratory preparation.**

**Learning Support**

- **Access Office:** Students with disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The Access Office is located in Farbar Hall. The phone numbers are 229-245-2498 (V), 229-375-5871 (VP) and 229-219-1348 (TTY). For more information, please visit VSU’s Access Office or email: [access@valdosta.edu](mailto:access@valdosta.edu).
- **The Academic Support Center:** The Academic Support Center provides free peer tutoring for most core courses and some upper-division courses. It also offers time management and study skills workshops as well as other learning support services. Call 333-7570 to make an appointment, or visit the website:

<https://www.valdosta.edu/asc/>

- **Odum Library** provides a variety of services to assist classroom instruction, including library instruction, course reserves, and interlibrary loan. Please see <https://www.valdosta.edu/academics/library/> for further information.
- **Title IX Statement:** Valdosta State University (VSU) upholds all applicable laws and policies regarding discrimination on the basis of race, color, sex (including sexual harassment and pregnancy), sexual orientation, gender identity or expression, national origin, religion, age, veteran status, political affiliation, or disability. The University prohibits specific forms of behavior that violate Title IX of the Education Amendments of 1972. Title IX of the Education Amendments of 1972 prohibits discrimination on the basis of sex in education programs and activities that receive federal funding. VSU considers sex discrimination in any form to be a serious offense. Title IX refers to all forms of sex discrimination committed against others, including but not limited to: sexual harassment, sexual assault, sexual misconduct, and sexual violence by other employees, students or third parties and gender inequity or unfair treatment based on an individual's sex/gender. The designated Title IX Coordinator for VSU is Ms. Selenseia Holmes. To view the full policy or to report an incident visit: <https://www.valdosta.edu/administration/student-affairs/title-ix/>

### **Cheating or Plagiarism**

- Incidents of cheating or plagiarism will result in an automatic **“F” grade for the course and referral to the Office of Student Conduct for disciplinary action.**
- For the VSU's Academic Integrity Code please see <http://www.valdosta.edu/administration/student-affairs/student-conduct-office/>
- For the VSU's Academic Honesty policies and procedure please see <https://www.valdosta.edu/administration/student-affairs/student-conduct-office/student-code-of-conduct/appendix-a-academic-integrity/academic-integrity-code.php>
- VSU's Academic Student Conduct Code states that “no student shall engage in plagiarism, which is presenting the words or ideas of another person as if they were the student's own.” Content generated by an Artificial Intelligence third-party service or site (AI-generated content) without proper citation is another form of plagiarism. If you are unsure about whether something may be plagiarism or another form of academic dishonesty, please reach out to me as soon as possible.
- **Title IX Statement:** Valdosta State University (VSU) is committed to creating a diverse and inclusive work and learning environment free from discrimination and harassment. VSU is dedicated to creating an environment where all campus community members feel valued, respected, and included. Valdosta State University prohibits discrimination on the basis of race, color, ethnicity, national origin, sex (including pregnancy status, sexual harassment and sexual violence), sexual orientation, gender identity, religion, age, national origin, disability, genetic information, or veteran status, in the University's programs and activities as required by applicable laws and regulations such as Title IX. The individual designated with responsibility for coordination of compliance efforts and receipt of inquiries concerning nondiscrimination policies is the Office of Student Affairs.

**Tentative schedule: Please check BV for any changes that may occur during the semester.**

		LECTURE	LAB
Day	Date	Topic	Topics
Tue	20-Aug	Syllabus overview	<b>LAB 1:</b> Lab overview – Goals and Expectations. Completion of online pre-course survey.
Thu	22-Aug	Lecture 1 - Plant cell structures	
Tue	27-Aug		Lecture 2 - Energy processes
Thu	29-Aug		
Tue	3-Sep	<b>LAB 3:</b> Organization of CEBOT devices and Plant stress experiments / Raspberry Pi set up/ Arabidopsis, Tomato and Peanut plant set up	
<b>Thu</b>	<b>5-Sep</b>	<b>Review/Q&amp;A</b>	
<b>TUE</b>	<b>10-SEP</b>	<b>LECTURE EXAM 1</b>	<b>LAB 4:</b> Plant microscopy – Organelle visualization
Thu	12-Sep	Lecture 3 – Nitrogen fixation	<b>LAB 5:</b> Arabidopsis genomic DNA isolation and PCR analysis – PART I and II
Tue	17-Sep	Lecture 3 – Nitrogen fixation	
Thu	19-Sep	Lecture 4 – Plant Stress biology – 1	
Tue	24-Sep	Lecture 4 – Plant Stress biology – 1	<b>LAB 6:</b> Arabidopsis total isolation and SDS-PAGE gel analysis
Thu	26-Sep	Lecture 5 – Plant Stress biology – 2	
Tue	1-Oct	Lecture 5 – Plant Stress biology – 2	<b>LAB 7: DIY labs</b> - Arabidopsis genomic DNA isolation, PCR, Protein isolation and SDS-PAGE gel analysis
<b>Thu</b>	<b>3-Oct</b>	Lecture 6 – Plant Stress biology – 3	
<b>Tue</b>	<b>8-Oct</b>	<b>Review/Q&amp;A</b>	<b>LAB EXAM 1</b>
<b>THU</b>	<b>10-Oct</b>	<b>LECTURE EXAM 2</b>	
<b>Tue</b>	<b>15-Oct</b>	<b>NO CLASS FALL BREAK</b>	
Thu	17-Oct	Lecture 7 – Plant Biotechnology 1	<b>QEP ACTIVITY</b> Pre-activity survey: <a href="https://valdosta.co1.qualtrics.com/jfe/form/SV_0wevvpR1MusIce">https://valdosta.co1.qualtrics.com/jfe/form/SV_0wevvpR1MusIce</a>
Tue	22-Oct	Lecture 7 – Plant Biotechnology 1 Lecture 8 – Plant Biotechnology 2	<b>LAB 8:</b> Stress to plants from Lab 3 and monitoring health – Photosynthetic efficiency/ Image J introduction. <b>Lab report preparation</b>
Thu	24-Oct	Lecture 8 – Plant Biotechnology 2	<b>QEP ACTIVITY</b>
Tue	29-Oct	Lecture 9 – Plant Biotechnology 3	<b>LAB 9:</b> Monitoring plant health – Photosynthetic efficiency/ Image J Analysis. <b>Lab report update</b>
Thu	31-Oct	Lecture 9 – Plant Biotechnology 3	<b>QEP ACTIVITY</b>
Tue	5-Nov	Lecture 10 – Plant Biotechnology 4	<b>LAB 10:</b> Monitoring plant health – Photosynthetic efficiency/ Chlorophyll and Anthocyanin estimation. <b>Lab report update</b>
Thu	7-Nov	Lecture 10 – Plant Biotechnology 4	<b>QEP ACTIVITY</b>
Tue	12-Nov	Lecture 11 – Plant Biotechnology 5	<b>LAB 11:</b> DIY Monitoring plant health – Photosynthetic efficiency/ Chlorophyll and Anthocyanin estimation <b>Lab report update</b>
Thu	14-Nov	Lecture 11 – Plant Biotechnology 5	<b>LAB 12: Lab report readiness and Peer Review</b> <b>Post-activity survey:</b> <a href="https://valdosta.co1.qualtrics.com/jfe/form/SV_0wevvpR1MusIce">https://valdosta.co1.qualtrics.com/jfe/form/SV_0wevvpR1MusIce</a>
Thu	21-Nov	<b>Lab Report finalization and upload to BlazeVIEW</b>	
Tue	26-Nov		
Thu	28-Nov	<b>NO CLASS THANKSGIVING BREAK</b>	
<b>Tue</b>	<b>3-Dec</b>	<b>Lecture Exam 3</b>	
<b>Thu</b>	<b>5-Dec</b>	<b>Optional Comprehensive Exam 8:45 AM – 10:00 AM</b>	