

BSC 597W
The Plant Microbiome
Courses Syllabus: Spring, 2024

Instructor: Dr. Lin Guo

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Phone: 903-886-5371

Classroom: Web based class

Office location: Science building 234

Office hr: 8:00–5:00 pm online M-F

Fax: 903-886-5997

Time: 1/10/24-5/10/24

Text Book: No book is required. The teaching materials or link of resources are provided in D2L.

Course Description: This graduate course provides an overview of the concepts of plant microbiome; gives an insight into the dynamic relationships between plant and microorganisms; covers various aspects about the use of plant-microbiome interaction for nutrients uptake, nitrogen fixation, carbon sequestration, pollutants cleaning and soils/plants health improvement.

Instructional Method: Lecture, discussions, quizzes, and papers; **fully online**

Learning Objectives: Upon completion of this course, you should be able to:

1. Demonstrate a deep knowledge about plant microbiome and the interactions between plants and microorganisms
2. Know the current techniques related to plant microbiome research
3. Understand how plant associated microorganisms help with plant growth and contaminants removal by phytoremediation
4. Critically analyze the current research related to plant microbiome
5. Propose new questions in plant microbiome research

Evaluations:

quizzes	50 points	A \geq 90%
Term-paper	50 points	B \geq 80%
Discussions	50 points	C \geq 70%
Article review	20 points	D \geq 60%
Total	170 points	F<60%

Quizzes: please complete quizzes after studying the lecture of **some units** on D2L.

Article Review: Read the assigned article about current plant microbiome and write a review. The review should be typed (12 pt font, 1.5 line spacing) and include two full paragraphs. First, conclude the main contents of the article (about one half to one page). In the second paragraph (about one half to one page), please critique of the article with substantive or evidence-driven arguments for or against the opinions of the article (e.g. whether you like the article and why). The reviews must be sent to the assignment submission folder in D2L **before 5 pm on Feb 28**. Source of information must be cited and referenced.

Term-paper: Write a term paper to discuss a case study of microorganisms assisted **phytoremediation project**; In this paper, you will need to introduce the background of the project, the details of the project (e.g. the microorganisms used, the interactions between plants and microorganisms, etc), the results of the project, and the suggestions for future; Use 12 pt font, 1.5 line spacing; more than 4 pages; Due on or **before 5 pm on April 30**; Source of information must be cited and referenced.

Discussion: Participate in the online discussions. Post your own thoughts. Post **at least one** comment to each question posed by the instructor. Read the postings of others and respond (**at least two** peer review responses are needed). Your level of participation - both quantity and quality - is part of your participation grade. Discussions will open for one week. It will close at **midnight** of Friday. I encourage you to do it as earlier as possible.

All the assignments are expected to be submitted on time

Topics:

- Jan 10-19: Overview of microorganisms
- Jan 22-Feb 2: Basics of plant microbiome
- Feb 5-16: Plant microbiome and plant health
- Feb 19-Mar 1: Environmental pollution and bioremediation
- Mar 4-22: Microorganisms for phytoremediation
- Mar 25-Apr 5: Microorganisms for carbon sequestration
- Apr 8-19: Plant microbiome in practice
- Apr 22-30: Future research about plant microbiome
- May 6-10: Final and term paper

University Procedures:

TAMUC Attendance:

The teaching/learning materials will be posted in D2L. Students have access to those materials anytime. However, all the assignments are expected to be finished on time.

Students with Disabilities:

The Americans with Disabilities Act (ADA) prohibits discrimination against people with disabilities in employment, transportation, public accommodation, communications, and governmental activities.

If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services, Texas A&M University-Commerce

Gee Library- Room 132

Phone (903) 886-5150 or (903) 886-5835 Fax (903) 468-8148 Email: Rebecca.Tuerk@tamuc.edu

Website: Office of Student Disability Resources and Services

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

Academic Integrity:

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

Graduate Student Academic Dishonesty 13.99.99.R0.10

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

Nondiscrimination Notice:

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Student Conduct:

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.

<http://www.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette <http://www.albion.com/netiquette/corerules.html>

Early Intervention for First Year Students:

Early intervention for freshmen is designed to communicate the University's interest in their success and a willingness to participate fully to help students accomplish their academic objectives. The university through faculty advisors and mentors will assist students who may be experiencing difficulty to focus on improvement and course completion. This process will allow students to be knowledgeable about their academic progress early in the semester and will provide faculty and staff with useful data for assisting students and enhancing retention. Grade reports will be mailed by the end of the sixth week of the semester.

Campus carry rules:

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to (<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>) and/or consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

Technology Requirement

D2L Access and Log in Information

This course will be facilitated using D2L, the learning management system used by Texas A&M University-Commerce. To get started with the course, go to myLeo, then select Apps, and then select myleo online (D2L Brightspace).

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

If you are having technical difficulty with any part of D2L Brightspace, please contact Brightspace Technical Support at 1-877-325-7778.

Interaction with Instructor Statement

If you have questions pertaining to the content of this course, please contact me via email or office time. Generally, emails will be answered within 24 hrs. If I can not answer emails on time, I will let you know in advance.