

Plant Science

11:776:242:01/02 (3 credits)
Fall/Spring Semester (yearly)
Hybrid Format

CONTACT INFORMATION

Instructor: Dr. Nrupali Patel
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Office Hours: by arrangement

COURSE DESCRIPTION

This course defines plant science as the study of the totality of the biochemical and biophysical life of plants – from molecule to whole plant. It is designed to consolidate student understanding of plants as living organisms formed from microscopic cells/organelles and submicroscopic molecules which interact in a complex environment to perform highly complex functions that ultimately give rise to the biomass that sustains the plant and other life forms on our planet. The relevance of knowledge of various aspects of these complex organisms to the appreciation of the significance of plants in our planet is highlighted.

COURSE WEBSITE, RESOURCES AND MATERIALS

- Online (internet) access to view the video lectures for each class through Sakai
- Required textbook: Introductory Botany: Plant, People and the Environment, 2008 by Berg
- Other: Fundamentals of Plant Science, 2009 by Glass and Parker

PREREQUISITE

None

CURRICULUM LEARNING GOALS



This course satisfies SAS Core Curriculum Goals: Natural Sciences (NS), e+f:

- e. Understand and apply basic principles and concepts in the physical or biological sciences
- f. Explain and be able to assess the relationship among assumptions, method, evidence, arguments, and theory in scientific analysis

COURSE LEARNING GOALS (link to Plant Biology Undergraduate Program Goals:
(<http://plantbiology.rutgers.edu/undergrad/plantbiology/>)

By the end of this course, the student will be able to:

1. Describe the fundamental molecular structure of plants (addresses program goal 1)
2. Define various components in plants that contribute to energy transformation (addresses program goal 1)
3. Identify plant structures and interpret modes of plant growth regulation and development (addresses program goal 1)
4. Discuss reproductive processes in plants as they function in species survival (addresses program goals 1 and 2)

ASSIGNMENTS/RESPONSIBILITIES AND ASSESSMENT

Grading: Grades will be determined based on three in-class examinations and weekly quizzes (on-line).

- Exam 1 = 25%
 - Exam 2 = 25%
 - Exam 3 = 25%
 - Online Quizzes (total of 11) = 25%
- Scale: 90-100% = A; 80-89 = B; 70-79 = C; 60-69 = D

Learning goals assessment: Specific questions on exams and quizzes will be used to assess student knowledge of all course learning goals. The percentage score on these assessments will determine the level of mastery: >90% outstanding; 80-89% good; 70-79% satisfactory; <69% unsatisfactory.

PARTICIPATION GRADE AND ABSENCE POLICY

This course is a hybrid course and therefore it is expected that students view the entire lecture for each class online as per the schedule. Attendance at in-class review sessions is optional but students are required to be present in class for all exams on scheduled days. Makeup exams for missed exams will be given during finals week.

Students unable to attend may contact the instructor via e-mail prior to the missed class or may use the University absence reporting website (<https://sims.rutgers.edu/ssra/>) to indicate the date and reason for the absence. An e-mail is automatically sent to the instructor.

CLASS WEBSITE

The Sakai platform will be used to support class activities. Lectures, supporting documentation, and assignments will be posted, and grades will be posted online so that students can monitor their progress in the class.

COURSE SCHEDULE (Spring sample)

Week 1	Introduction – role of plants (in class) General chemistry of plants (online)
Week 2	Biological chemistry of plants (online) Plant cell structure (online)

Week 3	Cell membrane structure and function (online) Cell division (mitosis and meiosis) (online)
Week 4	DNA (online) Gene expression (online)
Week 5	No online lecture: review for Exam I (in class) Exam I (in class)
Week 6	Plant tissues and organs (online) Root system and nutrient uptake (online)
Week 7	Leaves and stems (online) Transport systems (online)
Week 8	Flowers and reproduction (online) Fruit and seeds and embryonic development (online)
Week 9	Spring recess
Week 10	Control of plant growth (online) Response to biotic and abiotic stress (online)
Week 11	No online lecture – review for Exam II (in class) Exam II (in class)
Week 12	Energy and metabolism (online) Enzymes and control of metabolism (online)
Week 13	Photosynthesis (online) Photosynthesis continued and respiration (online)
Week 14	Respiration continued (online) Biofuels (online)
Week 15	No online lecture – review for Exam III (in class) Final exam (Exam II, not cumulative, in class, date to be determined)

FINAL EXAM/PAPER DATE AND TIME

The final exam (Exam III) is not cumulative and covers the last third of the course. The Online Final exam Schedule:
<http://finalexams.rutgers.edu/>

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/>

The principles of academic integrity require that a student:

- Properly acknowledge and cite all use of the ideas, results, or words of others.
- Properly acknowledge all contributors to a given piece of work.
- Make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- Obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.

- Treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- Uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that:

- Everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- All student work is fairly evaluated and no student has an inappropriate advantage over others.
- The academic and ethical development of all students is fostered.
- The reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

STUDENT WELLNESS SERVICES

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

Counseling, ADAP & Psychiatric Services (CAPS)

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

Violence Prevention & Victim Assistance (VPVA)

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

Disability Services

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in

your courses as possible. To begin this process, please complete the Registration form on the ODS web site at:
<https://ods.rutgers.edu/students/registration-form>.

Scarlet Listeners

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.