

Nursery Crop Production

11:776:439 (3 credits)
Spring Semester (yearly)

CONTACT INFORMATION

Instructor: Dr. Raul Cabrera
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Office Hours: by arrangement

COURSE DESCRIPTION

This class deals with commercial production of nursery crops (container-grown, field grown, and those few grown in protected structures) and their routing and management through the commercialization chain until transplant in their urban landscape setting. The intention is to take a look at the entire production and management chain, and incorporate aspects on some of the benefits and ecosystem services “ornamental” plants and trees provide at the end of this nursery-to-landscape/consumer chain. While the focus is on plants/crops under "managed ecosystems" in agriculture and urban settings, contrasts and comparisons will be made with plants/trees growing in native habitats/ecosystems. In other words, the expectation is to provide a more holistic approach to one of the most economically relevant agricultural commodities (green industry) in New Jersey. Participation in field trips (visits to commercial nurseries and walking tours on the SEBS-Cook Campus) is required. The course includes guest lectures from other Rutgers faculty and staff, and New Jersey green industry professionals.

COURSE WEBSITE, RESOURCES AND MATERIALS

- Course website: Sakai
- General References (not required):
 - *Nursery Management* (2nd ed., 2004). John Mason. Landlinks Press. 320 pp. ISBN-13: 978-0643090248
 - *So You Want to Start a Nursery – Illustrated* (2003). Tony Avent. Timber Press, Inc. 340 pages. ISBN-13: 978-0881925845
 - *Raising Native Plants in Nurseries: Basic Concepts* (2012). R. Kasten Dumroese, Thomas D. Landis, Tara Luna. CreateSpace Independent Publishing Platform. 92 pp. ISBN-13: 978-1480147089
 - *Nursery Management: Administration and Culture* (4th ed., 2000). Harold Davidson, Roy Mecklenburg and Curtis Peterson. Prentice Hall Career & Technology. 529 pp. ISBN 0-13-857996-2
 - *Best Management Practices: Guide for Producing Nursery Crops* (3rd ed., 2013). Ted Bilderback, Cheryl Boyer, Matthew Chappell, Glenn Fain, Donna Fare, Charles Gilliam, Brian E. Jackson, John Lea-Cox, Anthony V. LeBude, Alex Niemiera, Jim Owen, John Ruter, Ken Tilt, Stuart Warren, Sarah White, Ted Whitwell, Robert Wright and Tom Yeager. Southern Nursery Association, Inc., Acworth, GA. Online: <http://contents.sna.org/bmpv30.html>

PREREQUISITE

11:776:211 Introduction to Horticulture OR 11:776:242 Plant Science OR permission of instructor

Recommended coursework:

- At least one semester of biology (01:119:116 General Biology or equivalent)
- At least one agricultural course (for example, 11:020:210 Introduction to Agriculture and Food Systems; 11:020:436 Sustainable Agriculture; 11:550:371 Agriculture and the Landscape)
- At least one horticulture, plant science, ecology, or soils course (for example, 11:216:217 Principles of Natural Resource Management; 11:216:332 Plant Ecology; 11:216:351 Principles of Ecology; 11:216:365 Arboriculture; 11:375:360 Soils and Water; 11:375:453 Soil Ecology; 11:776:210 Principles of Botany)

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 basic resources necessary for nursery crop production (addresses program goals 1 and 2)
2. Explain the commercial aspects of the nursery crop industry (addresses program goals 2 and 3)
3. Explain the impact of nursery crops on the environment and society (addresses program goals 2 to 3)
4. Analyze and evaluate environmental issues related to nursery crop industries (addresses program goals 4)

ASSIGNMENTS/RESPONSIBILITIES AND ASSESSMENT

Grading:

- Midterm Exam: 15%
- Quizzes: 15%
- Reports: 30%
- Semester paper: 20%
- Class participation: 5%
- Final Exam: 15%
- Scale: 91-100% = A; 86-90 B+; 81-85 = B; 76-80 C+; 71-75 = C; 60-70 = D; <60 = F

Assignments: Assignments not turned in by due date will be subject to grade deduction (15% first day of delay, 30% second day of delay, 50% third day of delay, in additive fashion – meaning a compound grade reduction of 45% and 95% if turned in two and three days after deadline, respectively). Assignments include field trip reports that describe the facility visited, what they grow, things learned, and critiques.

Semester paper: Students will choose from a list of topics (plastics, water pollution/recycling, environmental footprint, agro-chemicals, invasive plants or other topic pertinent to the course) and write a 2000+ word paper that critiques four or more papers (from scientific journals and technical/trade magazines) on the topic. The paper will also include a design of an experiment (objectives, material and methods) and references cited in the format used by the American Society for Horticultural Science journals or the Harvard reference style. Papers that do not include a full listing of papers referenced in proper journal format will not be graded.

Field trip reports: Field reports are 250+ word summaries that include the type, purpose, relative size, facilities, horticultural focus (such as plant materials grown and maintained), and other details of each organization visited.

Greenhouse exercise report: Summarized in a 400+ word report are the purpose of the practicum, materials and methods, results, discussion, and critique.

Learning goals assessment: Specific questions on exams will be used to assess student knowledge of all course learning goals. The semester paper students will evaluate course learning goal 4. The percentage score on these assessments will determine the level of mastery: >90% outstanding; 80-89% good; 70-70% satisfactory; <69% unsatisfactory.

ABSENCE POLICY

Students are expected to attend lectures and trips. Students unable to attend may notify the instructor 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.

COURSE MAIN TOPICS

History, Importance, Site Selection and Development
Container, Field and Protected Culture Production of Ornamental Nursery Plants
Retail and Wholesale Nursery, Finances, Marketing
Soils, Growing Media Management
Nursery Production Cycles and Systems
Irrigation, Fertilization, Pest/Disease Management
Labor and Mechanization
Storage and Shipping of Nursery Products
Environmental Footprints and Benefits of Nursery/Green Industry Plants and Activities
Uses and Management of Nursery Plants/Products

FINAL EXAM/PAPER DATE AND TIME

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 AND UNIVERSITY CODE OF STUDENT CONDUCT: *To be approved by the class.*

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

The Rutgers University Code of Student Conduct is online at <http://studentconduct.rutgers.edu/disciplinary-processes/university-code-of-student-conduct/>

In brief, we will show courtesy and respect to ALL class participants at all times. In all assignments, any/all external sources of information must be duly credited. Use/citation of online information will only be accepted from *bona fide* academic sources and sites, backed preferably by their respective published scientific/technical reference(s). Unless indicated otherwise, for all reports, exams, and quizzes (in class and take-home), students are to work independently

(not together). Academically dishonest acts (i.e., cheating or plagiarism) will be handled in accordance with procedures defined in the Academic Integrity Policy.

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.