UNIVERSITY OF FLORIDA

Horticultural Sciences Department

VEC 3221C Fall 2017 Section 1172

HOS 6932 Fall 2017 Section 041C

Commercial Vegetable Production

Instructor: Bala Rathinasabapathi, Ph.D.
Room 2247, Fifield Hall
Phone 352-273-4847

Lecture: Mon, Wed and Fri 7th Period (1:55 pm – 2:45 pm)
Room 2316, Fifield Hall

Lab Fri 8th – 9th period (3:00 pm – 4:55 pm). Student vegetable gardens, Hull Road, Across from Fifield Hall

Office hours: By Appointment; e-mail brath@ufl.edu
Course Homepage: *http://www.hos.ufl.edu/vec3221.htm*

Optional Textbook:

Producing Vegetable Crops by Swiader JM and Ware GW., Interstate Publishers Inc., Danville, Illinois, 5th Edition, 2002. ISBN 0-8134-3203-0.

Other Optional References:

Vegetable Production Handbook For Florida 2006-2007, by Olson SM and Simmone E (Eds.), University of Florida, IFAS Extension. 438 pp.

Articles from Florida Cooperative Extension Service, Journal of the American Society of Horticultural Science, Hortscience and American Vegetable Grower.

Objective:
The principles and practices of successful commercial vegetable production will be presented. Crop requirements, growth patterns and production techniques are emphasized along with discussion of consumption/marketing patterns in the U.S. and Florida production areas. The laboratory involves field trips to farming operations and guest lectures from individuals in the vegetable production industry. Each member of the class will also develop a vegetable garden with different crops suitable for Fall production and participate in vegetable crop production activities.

General Syllabus:
Lecture information and laboratory experiences will instruct the student in the specific production practices and technology, as well as other important information required to successfully grow various vegetable crops.

For each crop grouping, the student will learn:

1. The botanical classification, horticultural types, origin, and history of each crop.
2. The scope and importance of production in the US, including where the crop is grown, commercial acreage, value and average yields.
3. Important aspects of vegetable growth and development, especially in relation to plant response to environmental factors and how they may affect production practices.
4. Specific climatic and cultural requirements of each crop.
5. Methods of planting, plant spacing and populations, and specialized procedures such as seed treatments.
6. Standard and evolving production practices and requirements necessary for successful production.
7. Leading cultivars and their important characteristics and new developments in breeding of specific crops.
8. Pests and significant physiological disorders.
9. Harvesting procedures, post-harvest handling of crops and food safety issues.

Format:

4-credit course for majors and non-majors. No pre-requisites.

Evaluation:

Students will be evaluated based on the following:

Class attendance & participation	50 points
Lab reports & field trip reports	100 points
Class presentation	100 points
Written assignment	50 points
Tests	100 points
Final Exam	100 points
TOTAL	500 points

* Letter grades for the course will be assigned according to the chart below:
90-100 = A; 87-89 = A-; 84-86 = B+; 80-83 = B; 77-79 = B-; 74-76 = C+; 70-73 = C; 67-69 C-; 64-66 = D+; 60-63 = D; 57-59 = D-; 56-below = E.

* Class attendance will be marked each day either at the beginning or end or middle of the class period.

Grades for the course will be assigned according to established university policy.

Learning Outcomes:

By the completion of this course, the conscientious student should be able to

- Explain production details for major vegetables.
- Diagnose problems related to soil fertility, irrigation and pests of major vegetables.
- Find sustainable solutions to problems related to soil fertility, irrigation and pests of major vegetables.
- Choose vegetable cultivars suitable for a given region or production system.
- Enumerate advantages and disadvantages of various production systems.
- Propagate and cultivate a vegetable garden
- Critically analyze production and marketing data and
- Estimate cost of production for major vegetables.

Assignments and Lab reports and field trip reports:

(1) Transplant Production (10 points). Each student will generate vegetable transplants of at least two vegetable crops. Instructions, material and greenhouse space will be provided. Quality of the transplants and a report of this activity will be evaluated.

(2) Field Production of Vegetables (40 points). The students will cultivate a variety of vegetable cultivars as part of their laboratory. A group of students will tend one garden but each student will keep a field notebook of weekly observations and write a final report for evaluation. The final report should contain information about the crops and their varieties, crop stand, weather, irrigation, soil fertility management, insect pests, diseases and weeds encountered and how the problems were solved and the quality and quantity of vegetables harvested.

(3) Container gardens (10 points). Facilities to set up container gardens of warm season vegetables, greenhouse space, materials and instruction will be provided. This year's theme will be set ups to grow three crops together. The quality of the crop and the final write up will be evaluated.

(4) Hydroponics (10 points). Facilities to set up hydroponics will be provided. Students will grow a crop of lettuce. The quality of the crop and the final write up will be evaluated.

(5) Field trip reports (30 points). The students need to write a summary of information and view points collected during field trips and invited speakers for 10 points each.

(6) Extra Credit. Students who can prepare a video presentation related to Horticulture careers will get 50 extra points. The edited video should be 5 minutes or longer, of good quality and is available for posting on YouTube. Please e mail me for more details if you are interested in this project, but this can count toward your grade only if completed before Oct 20, 2017.

(7) Written assignment (50 points). Related to your class presentation, a short essay is expected. It should be not longer than 6 printed pages of text, contain at least two figures and at least three references cited or sources consulted. For graduate students, it will be a report on their research and demonstration project.

(8) The Graduate Student Project (100 points): Graduate students taking this course for **HOS6932** (sections 041C) need to do a field research/demonstration project in a specific crop, in addition to those listed in points (1) to (7) above. The 100 points for the project is split as below:

Following a discussion in the classroom, students will develop an experimental design, research questions and hypotheses to be tested. Students will develop a plan to quantitatively measure growth, development, yield, quality traits of the vegetable crops using scientifically valid methods (20 points).

They will grow the plants and follow best practices of growing the crop (20 points).

They will collect quantitative data by taking measurements and qualitative data using photographs (20 points).

They will write a report including statistical analysis of quantitative data (20 points).

The students as a group make a Power Point presentation of their plan and their findings in two separate class presentations (20 points).

Course policies and procedures

Grades and Grade Points: For information on current UF policies for assigning grade points, see https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

Attendance and Make-Up Work:
Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx. Reports are due on the dates indicated in the instructions for each activity. Late homework will be accepted with a 20% penalty for each day after the due date. If you are having trouble with homework or class, please see me immediately. Test makeups will be arranged only in the case of an emergency and not for absences for any other reasons.

Safety: Follow all safety regulations in and out of the classroom.

Online Course Evaluation Process: Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open for students to complete

during the last two weeks of the semester, students will be notified of the specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

Academic Honesty: As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity*". You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: "*On my honor, I have neither given nor received unauthorized aid in doing this assignment*".

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

Software Use: All faculty, staff and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate.

Services for Students with Disabilities: The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation:
0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Campus Helping Resources: Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, www.counseling.ufl.edu/cwc/
Counseling services, groups and workshops, outreach and consultation, self-help library and wellbeing coaching.

U Matter We Care, www.umatter.ufl.edu/
Career Resource Center, First Floor JWRU, 392-1601, www.crc.ufl.edu/

Student Complaints:

Residential Course: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf
Online Course: http://www.distance.ufl.edu/student-complaint-process

Schedule:

Field trip and farm tour schedules are temporary and might change according to the convenience of the hosts and travel considerations. Guest lectures will be announced on specific topics and dates.

21 Aug 2017 Mon	Introduction & Syllabus, How to maintain a course notebook of observations. Reports.
23 Aug 2017 Wed	Importance of Vegetables
25 Aug 2017 Fri	Vegetable Seed Sources
25 Aug 2017 Fri	Lab 1 Vegetable Seed Sources *last day for drop/add*
28 Aug 2017 Mon	Major vegetables: Production Statistics & Information Resources
30 Aug 2017 Wed	"Building Better Peppers" – A project in plant breeding
1 Sep 2017 Fri	Vegetable Varieties I: Plant Breeding
1 Sep 2017 Fri	Lab 2 Transplant Production
4 Sep 2017 Mon	Labor day – No class
6 Sep 2017 Wed	Vegetable Varieties II: Plant Breeding
8 Sep 2017 Fri	Factors affecting Fall Vegetable Production
8 Sep 2017 Fri	Lab 3. Planting a Fall Vegetable Garden II

11 Sep 2017 Mon	GM Vegetable Crops I
13 Sep 2017 Wed	GM Vegetable Crops II
15 Sep 2017 Fri	Plant Nutrition
15 Sep 2017 Fri	Lab 4. Setting up a Container Garden of Vegetables Field Garden: Weeding, fertilizer application and pest control
18 Sep 2017 Mon	Plant Nutrition
20 Sep 2017 Wed	Hydroponics
22 Sep 2017 Fri	Nature and Properties of Soils
22 Sep 2017 Fri	Lab 5. Setting up a Hydroponics system Field Garden: Weeding, fertilizer application and pest control
25 Sep 2017 Mon	Soil fertility management
27 Sep 2017 Wed	Mulching
29 Sep 2017 Fri	Irrigation
29 Sep 2017 Fri	Lab 6. Setting up a drip irrigation system Field Garden: Weeding, fertilizer application and pest control
2 Oct 2017 Mon	Irrigation
4 Oct 2017 Wed	Insect pests on vegetable crops
6 Oct 2017 Fri	Homecoming. No class.
9 Oct 2017 Mon	Insect pests on vegetable crops
11 Oct 2017 Wed	Calculations on fertilizer requirements.
13 Oct 2017 Fri	Insecticides
13 Oct 2017 Fri	Observations and activities relating to labs 2 to 6. Fertilizer treatments to Container Garden and Adjustments to Hydroponics.
16 Oct 2017 Mon	Insecticides
18 Oct 2017 Wed	Crop Diseases

20 Oct 2017 Fri	Crop Diseases.
20 Oct 2017 Fri	No lecture class this day. Lab 7. Field trip to Citra farm
23 Oct 2017 Mon	Fungicides
25 Oct 2017 Wed	Herbicides
27 Oct 2017 Fri	Graduate students will present their first reports on their project.
27 Oct 2017 Fri	Lab 8. Vegetable harvesting and photographs of all the labs set up so far. Harvested produce need to be quantified by weighing them immediately after harvest.
30 Oct 2017 Mon	Weed control
1 Nov 2017 Wed	Pesticide sprayers and other applicators
3 Nov 2017 Fri	Harvest and Yield of Vegetables
3 Nov 2017 Fri	Lab 9. Identification of Weeds, Insects and Diseases. Take photos of all of the labs set up so far. (Each student needs to photograph his/her observations individually).
6 Nov 2017 Mon	Lab 10. Calibration of Pesticide Sprayers.
8 Nov 2017 Wed	Post-harvest handling of Vegetables
10 Nov 2017 Fri	Veteran's Day – No class
13 Nov 2017 Mon	Post-harvest handling of Vegetables
15 Nov 2017 Wed	Food safety issues (Guest speaker)
17 Nov 2017 Fri	Guest Speaker
17 Nov 2017 Fri	Lab 11. Pest control and Evaluation of the Crops.
20 Nov 2017 Mon	Tomato Production (Guest speaker)
22 Nov 2017 Wed	Thanksgiving – No class
24 Nov 2017 Fri	Thanksgiving – No class
27 Nov 2017 Mon	Lettuce and Endive Production

29 Nov 2017 Wed Cucurbit Production

1 Dec 2017 Fri Student presentations

1 Dec 2017 Fri Garden clean up and Field notebook evaluation.

4 Dec 2017 Mon Student presentations

6 Dec 2017 Wed Student presentations/ Last day of class

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