2019 University of Vermont
PSS 209: Diversified Farm Operations
Course Syllabus

Class Meeting Times:

- May 20 – August 7
- Monday and Wednesday 8:30 – 4:00
- Occasional Wednesdays will meet 8:00 – 5:00 to allow time for field trips to area farms

Instructors:

- Terence Bradshaw, tbradsha@uvm.edu, 802 922-2591 (lead instructor)
- S'ra DeSantis, sra.desantis@uvm.edu, 802-324-3073
- Rachel Stievater, Rachel.stievater@uvm.edu 802-279-2920
  Office hours by appointment

Class site: UVM Horticulture Research and Education Center
65 Green Mountain Drive, South Burlington, VT 05403
Students are responsible for transport to the HRC for class each day.
Directions to the Hort Farm:
http://www.uvm.edu/~hortfarm/?Page=directions.html

Course Texts

- All readings will be distributed electronically on Blackboard
- Building Soils for Better Crops by Fred Magdoff & Harold van Es
  - Pdf file is available on Blackboard, students may choose to purchase a hard copy on Amazon or another retailer
- Weekly posted readings as listed below
- Supplemental readings posted to Blackboard

Course Description

In this hands-on, experiential course, students will learn principles and practices of sustainable, diversified specialty crop production on-site at the Catamount Educational Farm (Cat Farm). Topics include: vegetable crop families; soil fertility management; composting; weed, insect and disease management; propagation and planting; crop planning; irrigation systems; farm financials and business planning; marketing techniques; broiler chicken management; and tractor operation. The class format will consist of a combination of lectures, hands-on fieldwork, and visits to local farms. Lectures will be presented by instructors and guest speakers from UVM Extension, the Plant and Soil Science Department and local farmers. Concepts and skills taught will immediately be applied through participation in Cat Farm's five-acre vegetable operation that supplies produce to the community through a CSA; a farm stand; and multiple wholesale accounts. Some work will also be performed in the UVM orchard and/or vineyard.

This course partners closely with the UVM Farmer Training Program (FTP), a noncredit, 6-month intensive program offered through Continuing and Distance Education. We will learn alongside FTP students both in the field and in the classroom.

Mondays begin with a crop class in the field, followed by a field walk to assess farm management and work tasks required for that week. After the field walk, students will learn farm skills and participate in the weekly farm tasks. Students will learn how to harvest, weed, direct seed, transplant, set up irrigation and operate a tractor.

On Wednesday mornings, students will learn in a classroom setting. Several curricular themes are presented, including: soil fertility management; pest, disease and weed management; business planning; and farm financials. A Bi-weekly Schedule of specific course topics is provided below. Wednesday afternoons start with a crop class followed by field work skills development alongside the Farmer Training Program.

Note general schedule is as follows unless otherwise noted in the Bi-weekly Schedule:

- Mondays
    - 8:30-9:30 Field Walk
    - 9:30-12 Field Work
    - 1-1:30 Weekly Meeting
    - 1:30-4 Field Work
- Wednesdays
    - 8:30-12 Classes
    - 1-1:30 Crop Class
    - 1:30-4 Crop Mob Field Work

Students should come to class each day prepared to work outside in any weather- sun, heat, cold, rain. Cat Farm is a production farm, and we have sales commitments to make in spite of adverse weather. Please bring water, sunscreen tick repellent, and comfortable, *closed-toe* shoes. Bare feet are not allowed on the farm, open-toed foot\wear is not allowed on or near equipment or in the farm fields.

Primary field work will occur in Cat Farm's certified organic vegetable fields. However, orchard and/or vineyard work may occur in plots managed under an Integrated Pest Management (IPM) system. Students will have opportunities to learn characteristics of both of those and other management systems for production of food crops.

Course Objectives

- Develop a definition and understanding of sustainability in agricultural systems
- Understand basic physical, chemical and biological properties of soil
- Learn steps for weed, insect and disease management on an organic vegetable farm
- Understand available management options and farming systems to address financial, social, and environmental sustainability
- Understand importance of field monitoring as an effective farm management tool
- Gain basic understanding to farm systems Understand characteristics of crop families
- Learn how to make a crop plan for an organic vegetable farm

- Apply concepts learned in class to date to operate Catamount Farm
- Learn effective record keeping for farm management
- Learn about agricultural careers from people working in the industry

Grading/Assessment

- Field Practicals 20%
- Quizzes 20%
- Professionalism 10%
- Crop Planning Assignment 10%
- Farm journal 20%
- Project 20%

All grading will take place on Blackboard.

Field Practicals:
Applied, hands-on activities will be performed in fields to develop skills introduced in lessons. This will include seeding, transplanting, weeding, harvesting, irrigation and tractor operation.

Quizzes:
Quizzes will be presented every other week to review the material covered in class and in the field. Five quizzes will be administered.

Professionalism:
Students are expected to attend all classes, participate in activities, and act in a professional manner.

Crop Planning Assignment:
Students will start to develop a crop plan for the field for vegetable crops. More details will come on July 11. Due Friday July 27.

Farm Journal:
Summarize the experience of managing the PSS 209 beds this summer. Reference your farm walk journals, observations and any insights provided from guest lectures and class readings. Journals should both detail work performed throughout the season and be reflective of that effort and its application to larger farm and food production goals. Due Friday, August 10 on blackboard.

Final Project, (written 10%, presentation 10%)

1) Each student will prepare a PowerPoint or Prezi presentation on a chosen crop cultivated at Catamount Farm or other farming topic and will share with the class on Wednesday, August 7. Each student will have 15 minutes for presentation and questions from the audience.
2) Each student will also complete a report on the crop or project he/she presented on. This write up will be due by Friday, August 9 on blackboard.

Bi-Weekly Schedule

Block One — May 20-22

"Germinate"

- Monday May 20
  - 8:30-10 Hort Farm Orientation with Terry Bradshaw
  - 10-12 Tour of Hort Farm, personal plot, field work with Rachel Stievater
  - 1-2:30 Soils Overview with S'ra DeSantis
  - 2:30-4 Field work
- Wednesday May 22 – at the Hort Farm
  - 8:30-10:30 Insect, Pest, Disease and Weed Management with Terry Bradshaw
  - 10:45-12 Crop Planning with Rachel Stievater
  - 1-4 Field work skills

Required Readings:

Due May 20

- Magdoff, F., & van Es, H. (2009). *Building Soils for Better Crops*. Burlington, VT: Sustainable Agriculture Publications. Chapters 1 Healthy Soils, Chapter 2 Organic Matter, Chapter 3 Amount of Organic Matter in Soils

Due May 22

- Finney, D. & Creamer N. (2008). Weed Management of Organic Farms. Center for Environmental Farming Systems at North Carolina State University.

Block Two — May 27 – June 5

"Establish"

Special

- Off – Monday May 28 for Memorial Day

Wednesday Classes:

- Wednesday May 29 – meet at the Hort Farm, field trip day
  - 8:30-11 The Farm Between with John and Nancy Hayden
  - 1-4 Soil Assessment with Ben Waterman
- Wednesday June 5 – at the Hort Farm
  - 8:30-10 Plant Pathology with Ann Hazelrigg
  - 10:15-12:15 Soil Basics with Wendy Sue Harper

Block Quiz: Wednesday May 29

Required Readings:

Due May 29

- Practical Soils Assessment by Ben Waterman. Access on Blackboard in Readings folder

Due June 5

- Everts, K. & Himmelstein, J. Disease Management for Organic Vegetable Farms. University of Maryland Extension. In the Organic Vegetable Production Manual.
- Magdoff, F., & van Es, H. (2009). *Building Soils for Better Crops*. Burlington, VT: Sustainable Agriculture Publications. Chapter 4 The Living Soil, Chapter 5 Soil Particles, Water and Air

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Spring: Block Three June 10-19

"Implement"

Wednesday Classes:

- Wednesday June 12 - at the Hort Farm
  - 8:30-10:30 Botany for Farmers with Michael Sundue
  - 10:45-12:15 Composting with Rachel Stievater
- Wednesday June 19 – at the Hort Farm
  - 8:30-10 Insect Pest Management with Vic Izzo
  - 10:15-11:45 Principles of Agroecology with Ernesto Mendez

Block Quiz: Monday June 10

Required Readings:

Due June 12

- Magdoff, F., & van Es, H. (2009). *Building Soils for Better Crops*. Burlington, VT: Sustainable Agriculture Publications. Chapter 13 Making and Using Compost

Due June 19

- Linker H., Orr, D. & Barbercheck, M. (2009). Insect Management of Organic Farms. Center for Environmental Farming Systems at North Carolina State University.
- Mendez, E., Bacon., C., Cohen, R. (2013). Agroecology as a Transdisciplinary, Participatory and Action-Oriented Approach.

Spring: Block Four June 24 – July 3

"Thrive"

Wednesday/Friday Classes:

- Wednesday June 26 – at the Hort Farm
  - 8:30-10 Farm/Work/Life Balance with Beth Holtzman
  - 10:15-11:45 Marketing the 5 Ps and Market Research with TBD
- Wednesday July 3 – at the Hort Farm
  - 8:30-11:30 Farm Financials with Sam Smith

Block Quiz: Monday June 24

Required Readings:

Due June 26

- Minnesota Institute for Sustainable Agriculture. (2010). Building a Sustainable Business: A Guide to Developing a Business Plan for Farms and Rural Businesses. Task 4 pp. 107-133

Due July 3

- Langemeier, M. (2011). Cash Flow Projection for Operating Loan Determination. Kansas State University.
- Langemeier, M. (2011). Balance Sheet – A Financial Management Tool. Kansas State University.
- Wiswall, R. (2009). *Organic Farmer's Business Handbook*. White River Junction, VT: Chelsea Green Publishers. pp. 13-20

Summer: Block Five — July 8-17

Wednesday Classes:

- Wednesday July 10 – at the Hort Farm
  - 8:30-10:30 Weed Ecology with Sid Bosworth
  - 10:15-11:45 Crop Planning with Rachel Stievater
- Friday July 12 – at ICF, then Diggers
  - 8:30-10 Equipment Overview with Andy Jones
  - 10:15-12 Diggers' Mirth Collective Farm with Dylan Zeitlyn
- Wednesday July 17 – at the Hort Farm
  - 8:30-11:30 Produce Safety with Hans Estrin

Block Quiz: Monday July 8

Summer: Block Six — July 22 – August 7

Wednesday Classes:

- Wednesday July 24 – meet at Hort Farm
  - Field Trip to Maple Wind Farm with Beth Whiting and Bruce Hennessey
- Wednesday July 31 – at the Hort Farm
  - 8:30-10 Crop mob
  - 10:15-11:45 Conservation Programs with Obediah Racicot and Britt Haselton
  - 12:45-2:15 Pollinators with Annie White
- Wednesday August 7 – at Hort Farm
  - Student Final Presentations

Block Quiz: Wednesday July 31

Required Readings:

Due July 31

- Xerces Society. (2015). Farming for Bees: Guidelines for Providing Native Bee Habitat on Farms. (not in reader) Available online at: http://www.xerces.org/wp-content/uploads/2008/11/farming_for_bees_guidelines_xerces_society.pdf

General Course Policies

1) Everyone must attend all classes.
2) All assignments and presentations must be completed on time. Late assignments and presentations will not be accepted.
3) Please turn off your cell phone and refrain from texting or other messaging when class is in session.
4) All students are expected to adhere to UVM Student Code of Academic Integrity. Offenses against the Code of Academic Integrity are deemed serious and insult the integrity of the entire academic community. Any suspected violations of the Code are taken very seriously and will be forwarded to the Center for Student Ethics & Standards for further intervention. To read the Code of Academic Integrity and learn more about the Center for Student Ethics and Standards, visit their website at: http://www.uvm.edu/cses/?Page=ah.html&SM=ahmenu.html
5) The HREC is a working research farm. All students must follow HREC Use Policies outlined at: http://www.uvm.edu/~hortfarm/documents/HRECpolicies.pdf
6) Other training policies including animal use training, lab safety training, and equipment operation and handling will be provided the first week of class.

Contacting course instructors or TAs:

The default method for contacting the course instructor or TA is via email.
All emails should begin with the subject line "[PSS 209]…"
This will allow for incoming messages to get flagged and not missed in overstuffed inboxes. Please use professional language in emails. Text messaging is not an appropriate method for communication with instructors and TAs. Our phone numbers are listed at the top of this syllabus, use them only in an emergency and not during or immediately prior to class meeting time.

Software and Applications

We will use UVM Blackboard for course management and all assignments must be submitted and will be graded via that system. In the event of a Blackboard outage, alternative electronic means for submitting assignments will be presented. Assignments should not be turned in as paper copies unless otherwise stated. Additionally, is assignments are accepted via email, and announcement will be made prior to submission which will include specific instructions for tagging subject lines in order to track assignments. Assignments will not be accepted via cloud services such as Google Docs.

There will be assignments in this course that require use of spreadsheet software. We strongly recommend using an up-to-date version of Microsoft Excel for those assignments. Alternative software may be used but if we can't read a file it won't get graded, so make sure your program can convert and be read in our version of Excel. We will not accept a Google Sheet for any homework or project assignments.

Sources and Citations

All work must include appropriate citations. Please consider the quality of sources and provide complete information in APA format (https://owl.english.purdue.edu/owl/section/2/10/).

Late Homework Policy
One point will be deducted for each day an assignment is late. Assignments will not be accepted after three days unless the absence has been approved by Whitney Northrop in the CALS Student Services Division or the student services staff person from your college.

Attendance and Tardiness:
Students are expected to attend and participate in each class. Absences may be excused prior to class for medical or significant family issues. Unexcused absences will negatively affect you professionalism grade.

Religious Holidays:
Students have the right to practice the religion of their choice. If you need to miss class to observe a religious holiday, please submit the dates of your absence to me in writing by the end of the second full week of classes. You will be permitted to make up work within a mutually agreed-upon time.

Inclusiveness:
Disability/Access: In keeping with University policy, any student with a documented disability interested in utilizing accommodations should contact ACCESS, the office of Disability Services on campus. ACCESS works with students to create reasonable and appropriate accommodations via an accommodation letter to their professors as early as possible each semester.
Contact ACCESS: A170 Living/Learning Center - 802-656-7753 - access@uvm.edu.

Student Rights and Responsibilities:
Academic Integrity Policy

1. Students may not plagiarize.
   All ideas, arguments, and phrases, submitted without attribution to other sources must be the creative product of the student. Thus, all text passages taken from the works of other authors (published or unpublished) must be properly cited. The same applies to paraphrased text, opinions, data, examples, illustrations, and all other creative work. Violations of this standard constitute plagiarism.
2. Students may not fabricate.
   All experimental data, observations, interviews, statistical surveys, and other information collected and reported as part of academic work must be authentic. Any alteration, e.g., the removal of statistical outliers, must be clearly documented. Data must not be falsified in any way. Violations of this standard constitute fabrication.
3. Students may not collude.
   Students may only provide, seek or accept information about any academic work to or from another student with the authorization of the instructor. Students may only collaborate on academic work within the limits prescribed by their instructors. Violations of this standard constitute collusion.
4. Students may not cheat.

Students must adhere to the guidelines provided by their instructors for completing academic work. Students may not claim as their own work any portion of academic work that was completed by another student. Students may only use materials approved by their instructor when completing an assignment or exam. Students may not present the same (or substantially the same) work for more than one course without obtaining approval from the instructor of each course. Students must adhere to all course reserves regulations. Violations of this standard constitute cheating.

5. Cheating on any tests or quizzes will result in a zero grade.

Grade Appeals

A student who believes that s/he has received an unfair course grade should first contact the registrar's office to verify that the grade submitted by the instructor is the same grade the registrar has recorded. If the grade has been recorded correctly, the student should next contact the instructor. If satisfaction cannot be achieved then contact the department chair, and finally the dean of the college/school in which the course is offered (in that order) to discuss the matter. The following deadline must be observed by the student who wishes to appeal a grade (though extensions may be granted by the dean of the college / school offering the course). The student should contact the instructor as soon as possible, and no later than the tenth day of instruction of the semester following the assignment of the grade in question. No grade can be appealed after the student has graduated.

Educational Records and Privacy

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their education records.

The right to inspect and review the student's education records within 45 days of the day the University receives a request for access. Students should submit to the registrar, dean, head of the academic department, or other appropriate official, written requests that identify the record(s) they wish to inspect.

The right to request the amendment of the student's education records that the student believes to be inaccurate, misleading, or otherwise in violation of the student's privacy rights under FERPA. Students may write the University official responsible for the record to ask that it be amended, and should clearly identify the part of the record they want changed and specify why it is inaccurate, misleading, or otherwise in violation of their privacy rights under FERPA.