

Dakota College at Bottineau Course Syllabus

HORT 249 Greenhouse Operations

Spring Semester 2020:

4 credits

Course Description:

Course will focus on the development, organization, infrastructure and operation of production greenhouses while examining different greenhouse structures. Production techniques such as watering, fertilizing, growth regulators, and insect and disease identification and control will be covered.

Course Objectives:

1. Achieve an insight into the field of greenhouse
2. Developing an understanding of the levels of and responsibilities of greenhouse management.
3. To understand the general principles of greenhouse crop production
4. Learn and understand basic greenhouse structures and be able to discuss the pros and cons of each type of structure.
5. Create a layout plan describing structure type, ventilation, heating and cooling and watering systems.

Instructor:

Amy Koehler

Office:

Molberg 27

Office Hours:

By appointment

Phone:

701-228-5605

Email: Amy.koehler@dakotacollege.edu

Lecture Schedule:

MW 11-11:50pm F 11-12:40pm

Textbook(s): *An Introduction to Greenhouse Production*. Second Edition.

McMahon, Robert W.

(A PDF of manual will be provided to students by instructor)

Course Requirements:

Class participation (10pts each)

Class Exercises (30 pts each)

3 Lecture Tests (100 pts each)

Field Trip exercises/participation (50 pts)(off campus)

Field Trip Field Trip exercises/participation (30 pts) (on campus)

Industry Interview (150 pts)

Reflective Writing Assignments. (30 points)

Article Discussion (50 points)

Greenhouse layout and management final project (200 points)

*****Field Trips will be taken as part of this class in order to gain experience and exposure to the Industries involved in Greenhouse Operations.**

GRADING: Grading is based on a standard college curve, where students earn a grade based upon the percent of total possible points they obtain. Any missed quiz, exam or assignment not made up within the allotted time will be given a zero. The “allotted time” given is at the discretion of the instructor and will be communicated to the students throughout the course. (Note: It is the responsibility of the student to

schedule make-up work with the instructor at a time convenient to both parties.) Final letter grades are assigned based on the following criteria:

- A = 90-100% of the total points**
- B = 80-90% of the total points**
- C = 70-80% of the total points**
- D = 60-70% of the total points**
- F = <60% of the total points**

Reflective Writing Assignments will be assigned with prompts throughout the semester and graded based on a rubric that looks for addressing of prompt, depth of understanding, use of technical information, language use, and overall synthesis of content. This is a powerful learning tool as it integrates experience with knowledge gathering and seeks to integrate the two to demonstrate higher level learning than what would be assessed in examinations.

Tentative Course Outline/Topics:

***January 24th-26th students will have the option to attend the NPSAS Winter Conference in Fargo, ND**

****January 26th – 28th students will have the option to attend the North Dakota Greenhouse, Nursery and Landscaping Association (NDGLA) conference in Fargo, ND.**

*****Sometime in April students will be attending a Mandatory Field Trip to the International Peace Gardens.**

- **Identification required for entrance to the Peace Gardens is preferably a passport or passport card, if you don't have one of these, you will need photo ID and an official birth certificate**

*******Note Sometime in March there will be scheduled a mandatory field trip to Lowe's Floral and Garden Center, Minot ND.**

*******Students will be required to attend multiple "field trips" on DCB campus throughout the semester where they will tour and explore the DCB Greenhouse and High tunnel facilities.**

- **IVAN students will participate through digital recordings.**

Week	Topics and Assignments
1	<p>Introduction to the course Lecture: Overview of the Greenhouse Industry Reading:</p> <ul style="list-style-type: none"> • Chapter 1 Overview of Greenhouse Industry pg. 1-24 • Floriculture World Wide; Production, trade and consumption patterns show market opportunities and challenges (PDF provided) <p>The Secret Language of Plants: Nat Geo Video https://youtu.be/csKVYqV95rk</p>

Week	Topics and Assignments
2 No School Monday NPSAS Conference	Lecture: Greenhouse construction, Reading: -Chapter 2 Greenhouse Structures pg 25-42, https://youtu.be/viETj2N5qjs
3 NDGNLA Conference	Lecture, High Tunnel Construction and Production Reading: USDA SARE High Tunnels and Other Season Extension Techniques https://youtu.be/5xwp2zyGjxM
4	Lecture: , Heating the Greenhouse Environment, Reading: Chapter 3 Controlling the Greenhouse Environment pg. 45-82 https://youtu.be/5xwp2zyGjxM
5	Lecture: Catch-up, Video and Worksheet “Living Soil” Film https://youtu.be/ntJouJhLM48 Test Review : Overview of the Greenhouse Industry, Greenhouse Structure, High Tunnel Construction and Production, Heating the Greenhouse Environment, “Living Soil” Film
6 No School Monday	Test: : Overview of the Greenhouse Industry, Greenhouse Structure, High Tunnel Construction, Heating the Greenhouse Environment, “Living Soil” Film *Tour of the DCB Greenhouse heating facilities
7	Lecture: Greenhouse Cooling Equipment Reading: TBD
8	Lecture: Greenhouse Lighting, Greenhouse Irrigation Systems Reading: Chapter 5 Greenhouse Irrigation Systems pg. 103-120 -Chapter 4 Greenhouse Equipment and Lighting p.g 87-97 -Science advances in matching LED lighting to horticultural needs (MAGAZINE) LEDs
9 Industry Interview Due	Lecture: Root Media and Containers, Reading: Chapter 6 Root Media -Chapter 7 Nutrition pg. 157-171 -Chapter 8 Integrated Pest Management pgs. 177-187 and Containers pg. 127-151 *Tour of DCB Greenhouse lighting, media and irrigation equipment
March 11-15	Spring Break
10 Test Week	Review of Test Test: Greenhouse Cooling Equipment and Lighting, Greenhouse Irrigation Systems, Root media and Containers, Nutrition,
11	Lecture: Integrated Pest Management and Nutrition, Bedding Plant Production *fertilizer calibration exercise in DCB Greenhouse. Reading: Chapter 10 “Bedding Plant Production” pgs. 197-229

Week	Topics and Assignments
12	Lecture: Cut Flower Production Reading: Chapter 13 “Cut Flower Production” pgs. 339-350
13	Lecture: Specialty Crop High Tunnel Production Reading: TBA
14	Lecture: Hydroponics and Aquaponics Reading: TBA
15	Make-up/Review Week *Tour of DCB Greenhouse Bedding plant and hydroponics/aquaponics production Final Projects
16	Test Review Final Test: Bedding Plant Production, Cut Flower Production, Specialty Crop High Tunnel Production, Hydroponics and Aquaponics

Relationship to Campus Theme:

All aspects of horticulture develop an appreciation for nature and the materials that Mother Nature and technology have provided for us. Because of this we are able to make the world a more beautiful place.

Student Email Policy:

Dakota College at Bottineau is increasingly dependent upon email as an official form of communication. A student’s campus-assigned email address will be the only one recognized by the campus for official mailings. The liability for missing or not acting upon important information conveyed via campus email rests with the student.

Academic Integrity:

All students are expected to excel to the best of their ability. Students must adhere to the highest standards of academic integrity. Dishonesty in the classroom or laboratory and with assignments, quizzes and exams is a serious offense and is subject to disciplinary action by the instructor and college administration. For more information, refer to the student handbook.

Plagiarism: The strength Dakota College at Bottineau depends on academic and personal integrity. In this course, you must be honest and truthful. Plagiarism is the use of someone else’s work, words, or ideas as if they were your own. Here are three reasons not to do it:

- By far the deepest consequence to plagiarizing is the detriment to your intellectual and moral development: you won’t learn anything, and your ethics will be corrupted.
- Giving credit where it’s due but adding your own reflection will get you higher grades than putting your name on someone else’s work. In an academic context, it counts more to show your ideas in conversation than to try to present them as *sui generis*.
- Finally, all students are expected to adhere to the highest standards of academic integrity. Students must complete all work themselves. Cheating or plagiarism is a serious offense and is subject to disciplinary action by the instructor and the college administration. Please be sure to review the **Student Handbook**. **The consequences of plagiarism in this class depend on the level exhibited, but are at a minimum a failing grade on the assignment up to failing the class.**

Disabilities and Special Needs:

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact your instructor and the Learning Center (701-228-5479) as early as possible during the beginning of the semester.