**Greenhouse Management – Spring 2019**

Linn Benton Community College – Agricultural Sciences

**Course Numbers** HT8.115 - CRN: 45686

**Course Credits:** 3 credits

**Meeting Time & Room:** Lecture: M 10-11:50am WOH 122

Lab: W 10-11:50am Greenhouse

**Instructor:** Miriam Edell

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**Office Hours:** Monday 12:00pm-1:00pm

WOH 123

**Course Description** This course introduces you to the management of greenhouses for ornamental plants, nursery stock and food production and helps you prepare for a career in a commercial greenhouse operation. We will go over background information on the greenhouse industry, greenhouse structures, growing media and conditions, IBPM (integrated biological pest management) pests and disease issues. The lab and lectures consist of hands-on experiential activities, preparation for the Annual Mother's Day Plant Sale and field trips.

**Course Outcomes** 1. Compare root media and soil amendments for successful plant

growth.

2. Differentiate greenhouse designs and construction materials.

3. Manage common pests in a greenhouse using Integrated Biological

Pest Management methods.

4. Relate and interact with customers interested in purchasing

greenhouse products.

5. Discuss heat, light, fertility and water management for desired plant

growth.

**Course Materials:** Required:

Weekly readings will be posted online and/or given as handouts in class.

Books are available in the library for readings from the Ball Redbook Beytes and Nau; Greenhouse Operation and Management, Nelson

During some labs, you may need a calculator. Please bring a calculator.

The course will be organized around Moodle. That is where you can find readings, copies of lectures, and additional resources. Please familiarize yourself with Moodle and ask for assistance if needed.

\*\*Optional Books:

Your Homemade Greenhouse and How To Build It by Jack Kramer

Greenhouse Operation and Management, 7th Edition by paul V. Nelson

The Commercial Greenhouse, 3rd Edition by James W. Boodley and Steven E. Newman

Ball Redbook, Vol. 1 and 2, Chris Beytes, editor, and Jim Nau, editor

**Waitlist Policy** If the class is full, registered students not attending the first session without advance notice to the instructor will be dropped from the class and students from the waitlist will take their spots. Wait-listed students must attend the first class and get instructor approval to become registered students.

**Course Evaluation** You will be evaluated based on quizzes, assignments, lab attendance and participation, one exam, and a presentation. You have to let the instructor know ahead of time (via email or personal message) if you are unable to meet the due dates of assignments or take a quiz or exam, for a legitimate reason. It is the responsibility of the student to arrange a date to retake a quiz before it has been handed back, within 1 week. The exam cannot be retaken. Only students following this procedure will receive make-ups. Labs require your presence and cannot be made up.

**Grades:** The grading system for the course is “A-F”. Final grades will be based on the percentage of total points earned.

A = 90% and above - B = 80 to 89% - C = 70 to 79%

D = 60 to 69%. - F = 59% and below

Quizzes (3) 5 points each = 15 points

Assignments (3) 5 points each = 15 points

Labs (9) 4 points each = 36 points

Individual Project = 14 points

Exam = 20 points

**TOTAL = 100 points**

*Incomplete Grade:* An *Incomplete* will not be issued. Notify the instructor if you are no longer able to attend class.

*Y Grade:* If you miss more than 6 class session (including labs) you will not receive credit for the class (“Y” grade).

*Audit Status:* Students may request *Audit* status in place of a letter grade before the end of the second week.

**Quizzes 15% of your grade**

The quizzes will be based on lecture and reading materials.

**Assignments 15% of your grade**

Assignments allow more time for deeper understanding and exploration of a subtopic within Greenhouse Management. Assignments will be posted online and/or given as handouts in class, one week before they are due.

**Labs** **36% of your grade**

During lab we will grow and care for greenhouse plants. Lab grades will be based on attendance and effort. Worksheets done during lab will be collected to check for accurate completion. During field trips you will be graded for attending and contributing to the conversation.

**Individual Project 14% of your grade**

Each student will do a pre-approved individual project directly related to greenhouses.

Choose between:

Compare and contrast 3 greenhouses currently in production

or

Volunteer in a greenhouse for at least 15 hrs.

or

Project OK’d by instructor

You will need to explicitly document the work you do and present this work at the end of the quarter, on a poster board or photo presentation to the entire class. See ‘Individual project’ in Moodle for additional details.

**Exam 20% of your grade** The exam will be comprehensive covering all material from the class; including lectures, labs, and readings. A study guide is provided in Moodle, week 10.

**Student Integrity:** All students are expected to take tests with integrity, not jeopardizing their own honesty nor that of other students. Students falsifying information or found cheating will automatically fail the class.

**Disabilities Services**

\*\*\*Meet with instructor during week one\*\*\* If you have emergency medical information for your instructor, need special arrangements to evacuate campus, or have a documented disability, please meet with your instructor, by appointment, no later than the first week of the term, to discuss your needs and present your ODS accommodation letter. If you have a documented disability that will impact you at college and you have yet to seek accommodations, contact the Center for Accessibility Resources (CFAR) for intake and to document your disability with LBCC. Only students who document a disability and present an accommodation letter to an instructor are entitled to academic accommodation.

Each term, when you register for classes and at least 2-3 weeks prior to the start of a term, submit your “Request for Accommodations” form to CFAR. Week 1, pick up letters for your instructors and deliver in person to each instructor during office hours or by appointment. Instructors may need time to arrange your accommodations. CFAR may be reached from any LBCC campus/center by email to or by calling 917-4789. Letter pickup is available at each LBCC campus/center.” Additional instructional services, beyond classroom instruction and instructor consultations, are available for all students at the Learning Center and The Support Lab at HO-114.

**Classroom Guidelines**

* This is your course. You will learn the most if you actively participate in classroom discussions and share your experience and questions. At the same time, respect other students’ desire to learn while listening attentively and appreciating other points of view.
* Learn the names of your classmates. Help one another (not during tests).
* Turn off cell phones before you enter the classroom
* This is your classroom. Take responsibility for it by straightening up tables and chairs when you leave. Clean up the greenhouse after labs and put away equipment at the end of class. Pick up and remove litter. There are recycle bins at the back of the greenhouse.
* Arrive promptly before class begins. If late, enter quietly.
* Know basic safety rules and report any accidents, injuries, or problems immediately.
* Minor children will not be allowed in the classroom or lab areas for safety reasons.
* Let faculty or staff know if you are experiencing academic difficulties. Assistance is available. The LBCC Learning Center provides students with academic support and a comfortable place to study. For available services go to <http://cf.linnbenton.edu/depts/lrc/>

**Tentative Course Schedule**

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| **Week** | **Monday** | **Wednesday** | **Readings and Assignments** |
| 1 | **Course Overview**  **GH Industry Overview** | Greenhouse Tours    **GH Industry**  **Assignment 1, Due in class** | **Assignment 1** Observation Skills  **Assignment Due at the end of lab** |
| 2 | **Structures and Materials Lecture**  Discuss Individual Project | **Field Trip to OSU Greenhouses**  **On Campus Way , near 35th St. and Campus Way**  **Meet at 10:30 am**  **West Greenhouses, parking on site about 100 yds east of 35th St. on Campus Way** | <http://aggie-horticulture.tamu.edu/ornamental/greenhouse-management/greenhouse-structures/>  Extra:  <http://www.wvu.edu/~agexten/hortcult/greenhou/building.htm>  <http://msue.anr.msu.edu/news/analyzing_and_improving_your_farms_air_drainage> |
| 3 | **Quiz 1**  **Media and Containers Lecture** | **Making Sowing Mix**  **Plant Sale plant care** | <http://www.uaex.edu/Other_Areas/publications/PDF/FSA-6098.pdf>  <https://attra.ncat.org/attra-pub/viewhtml.php?id=47>  [ATTRA - Plug and Transplants for Organics](https://attra.ncat.org/attra-pub/download.php?id=55) |
| 4 | **Light Lecture**  **Hand out: Assignment 2** | **Plant Sale plant care**  Controlling Photoperiod;  Reading and Discussion | <http://www.greenhousegrower.com/article/21635/which-watering-method-is-best>  Extra  <http://www.ledsgrowinggreen.com/> |
| 5 | **Temperature Lecture**  **Assignment 2 Due**  **Handout Assignment 3** | **Plant sale plant care** | <http://edis.ifas.ufl.edu/ae030>  <https://attra.ncat.org/attra-pub/viewhtml.php?id=59>  [ATTRA – Compost Heated Greenhouses](https://attra.ncat.org/attra-pub/viewhtml.php?id=57) |
| 6 | **Water Lecture**  **Assignment 3 Due** | **Plant Sale prep**  **8am-11am**  **\*\*\*Plant Sale**  **10 am- 12 pm**  **-sign up for a 2 hours slot.**  **You may also participate for the whole day for extra credit (10 points)** |  |
| 7 | **Quiz #2**  **Fertilizers Lecture** | **Field Trip to U and D Nursery, Albany, Oregon** | <http://www.gpnmag.com/grower-101-nutrient-disorders-greenhouse-crops>  <http://www.gpnmag.com/grower-101-nutrient-disorders-greenhouse-crops-part-ii>  <http://www.agronext.iastate.edu/soilfertility/photos/photossdef.html>  Extra  Organic Fertilizer Sources  <https://attra.ncat.org/attra-pub/org_fert/> |
| 8 | **Pests and Diseases**  **Lecture** | **Field Trip to Garland Nursery** | ATTRA – Greenhouse IPM  Extra  ATTRA - White fly control  ATTRA – Aphid IPM  ATTRA - Thrips IPM  <https://attra.ncat.org/horticultural.html#Greenhouse> |
| 9 | **No class on Monday** | **Quiz 3**  **Student Presentations** | [Transitioning to Organic Production](https://nifa.usda.gov/funding-opportunity/organic-transitions-org)  USDA census [QuickStats](https://quickstats.nass.usda.gov/) |
| 10 | **Business Lecture**  Jobs in the Greenhouse Industry; Starting a Small Business - | **Field Trip to**  **Peoria Gardens**  **Peoria Rd.** |  |

***\* Lab periods may be used for field trips, which will be announced at least one week in advance.***

**Note: Any dates may change depending on the progress toward learning outcomes and needs of students and the instructor. I will provide notice if there are any changes.**