NRM 212
GREENHOUSE MANAGEMENT
Spring – 2017

Schedule

Monday 2:15 PM - 5:00 PM, AHRB 1W05

Course Objective:

To guide students to an understanding of greenhouses and other controlled environment production systems with emphases on use, applications, management and operation.

Expected Student Outcome:

Students should understand major design and construction requirements for a greenhouse to function as an efficient growing environment for various crops. Students should also understand environmental control systems and management practices such as media, irrigation, fertilization, crop production systems and pest management. Students should have ability to recognize and appreciate opportunities and challenges for efficient greenhouse use under northern conditions.

Instructor:

Dr. Meriam Karlsson, Professor of Horticulture
Office: 1W04 Arctic Health Research Bldg., 474-7005, mgkarlsson@alaska.edu
Office hours: Tuesday and Thursday 10 am -12 noon or by appointment, 1W04 AHRB
Tuesday 2 - 4 pm, Academic Advising Center, 510 Gruening Bldg.

WEB:

Blackboard https://classes.alaska.edu/

Virtual Grower 3

http://www.ars.usda.gov/services/software/download.htm?softwareid=309

Recommended Text:

Greenhouse Operation and Management, 7th ed., by Paul V. Nelson, 2012, Prentice Hall, Pearson Higher Education, ISBN 9780132439367, (list price new $253.50).

Supplemental Text:

Greenhouse Engineering, 3rd revision, by R.A. Aldrich and J.W. Bartok Jr., 1994, NRAES-33, Ithaca, NY. (http://host31.spidergraphics.com/nra/doc/Fair%20Use%20Web%20PDFs/NRAES-33_Web.pdf)

Greenhouse Technology and Management, 2nd ed., by N. Castilla, 2012, CABI, Boston.

Greenhouses, Advanced Technology for Protected Horticulture, by J.J. Hanan, 1998, CRC PressBoca Raton, Florida.

Greenhouses for Homeowners and Gardeners, by J.W Bartok, Jr., 2000, NRAES-137, Ithaca, NY

Evaluation Policy:

Grades will be based on exams, one literature review, the greenhouse design project and class participation. The relative importance of each component for the final grade is indicated below:

Exam I	200 (20%)
Exam II	200 (20%)
Final Exam	300 (30%)
Greenhouse Design Project	200 (20%)
Literature Review	50 (5%)
Class Participation	50 (5%)
	1,000 points (= 100%)

Letter grades will be determined using the following scale:

A	90.0	to 100	%
B	80.0	to 89.9	%
C	70.0	to 79.9	%
D	60.0	to 69.9	%
F	Below	59.9	%

Borderline grades may be curved based on class participation, attendance and student progress during the semester. No make-up exams will be given unless there is a verifiable emergency or arrangements have been made with the instructor prior to the scheduled exam or the due time.

Student Code of Conduct:

The UAF Student Code of Conduct includes the following common guidelines regarding academic integrity:

1. Students will not collaborate on any quizzes, in-class exams, or take-home exams that contribute to their grade in a course, unless the course instructor grants permission. Only those materials permitted by the instructor may be used to assist in quizzes and examinations.
2. Students will not represent the work of others as their own. A student will attribute the source of information not original with himself or herself (direct quotes or paraphrases) in compositions, theses, and other reports.
3. No work submitted for one course may be submitted for credit in another course without the explicit approval of both instructors.

Alleged violations of the Code of Conduct will be reviewed in accordance with procedures specified in regents' policy, university regulations and UAF rules and procedures. For additional information and details about the Student Code of Conduct, contact the associate vice chancellor for student and enrollment services, visit www.alaska.edu/bor or refer to the student handbook that is printed in the back of the class schedule for each semester. Students are encouraged to review the entire code.

For important UAF grading policy information, see the 2016-17 UAF Catalog, page 73

Disabilities Services: The Disability Services program, in 208 Whitaker, provides services to students with documented disabilities on the Fairbanks campus as well as the Bristol Bay, Chukchi, Interior Alaska, Kuskokwim, Northwest, and Community and Technical College campuses, Distance Education, and the College of Rural and Community Development. The goal of Disability Services is to ensure equal access to educational opportunities at UAF. Academic accommodations are free and available to any student who qualifies as an individual with a disability and is enrolled in at least 1 credit hour.

For more information contact the director of Disability Services at 907-474-5655 or 907-474-1827 (TTY), email uaf-disability-services@alaska.edu or at http://www.uaf.edu/disability/.

Literature Review:

One literature review based on a paper from a scientific journal covering a research study related to the construction, management or environmental conditions of a greenhouse or other controlled environment is required. In addition to the written review, a short presentation of the paper (less than 10 minutes) is expected. The literature review is due (at the latest) March 20 with the presentation March 27, 2017.

Format for Literature Review (see example on Blackboard)

Title of the article
Author(s)
Journal (name, year, page numbers)
Purpose of experiment
Procedures
Results and conclusions
Are the authors' conclusions valid? Who would benefit from this information? What additional work should be done? What would you have done differently? Any other comments.

Greenhouse Design Project:

Here you will have the opportunity to develop a design plan for a greenhouse that will be useful to you. The design and report should be comprehensive starting with the purpose and goals for your greenhouse. Other expected components besides the design and construction specifics such as size, location and type of greenhouse, include the purpose and use, management, business versus recreational, heating, cooling and irrigation approach, environmental controls, annual crop production plan, labor requirements, logistics and marketing methods (if applicable).

An outline for the design project is posted on Blackboard under the heading Greenhouse Design Guidelines. Many of the expected components are covered in the publication Creating a Master Plan for Greenhouse Operations by A.J. Both (http://njaes.rutgers.edu/pubs/publication.asp?pid=E221).

The Greenhouse Design Project is due on April 24 with a short presentation on May 1, 2017

NRM 212-Spring 2017, tentative schedule (pages Nelson, 2012. Greenhouse Operation and Management, 7th ed.)

January 23	Course introduction, Greenhouse definitions and industry characteristics	p. 1-33
January 30	Greenhouse designs and construction	p. 35-76
February 6	Greenhouse heating	p. 77-123
February 13	Greenhouse cooling and environmental control systems	p. 125-149, 151-159
February 20	Root substrates	p. 161-194, 195-209
February 27	**First Hour Exam** Watering	p. 211-260
March 6	Fertilization and carbon dioxide	261-318, 319-327
March 13	Spring Break	
March 20	Light and temperature **Literature review is due**	p. 330-372
March 27	Light and temperature **Literature presentations**	p. 330-372
April 3	Regulation of plant growth	p. 373-389
April 10	Pest and disease management	p. 391-442, 443-462
April 17	**Second Hour Exam** Postproduction quality	p. 463-488
April 24	Marketing and business management **Greenhouse design project is due**	p. 489-530, 531-586
May 1	**Presentations and discussion of your greenhouse designs**	
May 5	**Final Exam** (scheduled Friday May 5, 1-3 pm, during finals' week)	