HRT 341 Vegetable Production and Management
Course Syllabus, Spring 2026

Welcome to HRT 341! This course is designed to provide you with an introduction to the characteristics of a wide range of vegetable crops as well as methods for successfully producing them. Most of our time will be spent learning the elements of successful vegetable production including the what, where, when and how of growing specific crops. Topics will include crop classification and rotation; planting methods; soil and water management; pest management; harvest and postharvest management. The laboratory portion of the class will provide an opportunity to identify and grow vegetables; gain hands-on experience with production technologies; conduct experiments; visit farms; and integrate and discuss class material.

Course Learning Objectives:

- Understand systems of classification of vegetables from diverse botanical families and their implications for management practices including site selection, planting dates, crop rotation and post-harvest management.
- Develop an appreciation for the diversity of successful and sustainable models of vegetable production systems.
- Develop diagnostic skills for identifying soil, water, nutrient and pest management constraints to successful vegetable production.
- Understand appropriate, effective, and integrated approaches to managing constraints to vegetable production systems.
- Apply scientific methods to test hypotheses related to optimal management of vegetable crops.
- Demonstrate competence with both laboratory and field-based technologies used in modern vegetable production.
- Develop hands-on skills for growing and observing a variety of vegetable crops.
- Improve written and oral communication skills through written assignments and presentations to class.

Instructor: Dan Brainard, Professor, Department of Horticulture
A-440 A Plant and Soil Sci Building, brainar9@msu.edu
Office Hours: Wed after class in PSSB A182 (1:30-2:00) or by Appointment.

Meeting Times and Locations:
Lectures: Monday and Wednesday, 12:40 to 1:30 PSSB A182
Labs: Monday, 1:45 to 4:45 PM B109 (or Hort Farm or Field Trips). Early in the semester labs will mostly finish up by 4:00 PM. For field trips later in the semester, we may not get back to campus until 6:00 PM.

Required Texts and Readings:
All required and supplemental readings are posted on D2L under the “Content” tab.

Grading

Assignment	Grade %
Participation (including attendance!)	10
Homework modules x 10 (lowest dropped)	30
Lab (Notebook/Quizzes/Presentations)	30
Exams x 3	30
Total	100

Points	Grade
>90	4.0
85-90	3.5
80-85	3.0
75-80	2.5
70-75	2.0
65-70	1.5
60-65	1.0
<60	0.0

Lab activities. Lab sessions will include short experiments, demonstrations, field trips, presentations, and opportunities for discussion. You will be expected to bring a 3-ring binder to organize lab assignments and resources. The notebook will be collected and graded twice during the semester. Details regarding lab activities and expectations will be posted in the 'Lab Handouts and Resources' Folder on D2L.

Exams. All exams will be in-class and closed book. They will generally consist of a mix of multiple choice and short answer questions. Many of the questions will be taken directly from homework assignments. The final exam is cumulative.

D2L Site

D2L in this course is used for:

- Course announcements
- Email correspondence. If you have not already, consider adding a forwarding email address in the settings of your D2L mail to ensure you are getting all correspondence
- Access to Homework assignments (presented as D2L quizzes)
- Access to the course syllabus, lecture slides, online resources, misc. supplementary material, exam review sheets, and other relevant course material

HORT 341: Syllabus Schedule PART 1 (through spring break)
As of 1/12/26 (subject to change!)

Class	Day	Date	Topic(s)	Readings (D2L File Number)	Homework (HW)	Quizzes & Exams
1	Mon	1/12	Course Overview; Getting started: Seeds, Transplants, Tubers and Slips	1a-c		
Lab 1	**Mon**	**1/12**	**Vegetable Propogation; Seed ID; Microgreens**		**HW1 available (due Thurs)**	
2	Wed	1/14	Vegetable Classification	2		
	Mon	1/19	MLK. No Class or Lab			
3	Wed	1/21	Vegetable Farm Diversity: Markets, Scales & Philosophies	5		
4	Mon	1/26	Soils 1: Vegetable Fertility Management (Hayden)	3a-c		
Lab 2	**Mon**	**1/26**	**Experiment Basics; Microgreens; Veg ID**		**HW2 available (due Thurs)**	
5	Wed	1/28	Soils 2: Tillage and Cover Cropping	4a-b		
6	Mon	2/2	ASTERACEAE/BRASSICACEAE LEAFY GREENS: Lettuce, Kale, Arugula etc	6		
Lab 3	**Mon**	**2/2**	**Nutrient/Soil Management**		**HW3 available (due Thurs)**	**Quiz 1: (cool season veggies)**
7	Wed	2/4	Irrigation of vegetable crops	7a-b		
8	Mon	2/9	Crop rotation principles and practices	8		
Lab 4	**Mon**	**2/9**	**Irrigation; Crop rotation**		**HW4 available (due Thurs)**	
9	Wed	2/11	Weed Ecology and Management	9a-d		
10	Mon	2/16	Insect Management and IPM	10		
Lab 5	**Mon**	**2/16**	**Pest Management**		**HW5 available (due Thurs)**	**Quiz 2: (warm season veggies)**
11	Wed	2/18	Disease ID and Management	11		
12	Mon	2/23	Postharvest management & Food Safety	12		
Lab 6	**Mon**	**2/23**	**Mushrooms (Rennick) + EXAM 1 Review**			
13	Wed	2/25	**EXAM 1 (Classes 1-10)**			**EXAM 1**
SPRING BREAK 2/28-3/8						

HORT 341: Syllabus Schedule PART 2 (after spring break)
As of 1/12/26 (subject to change!)

Class	Day	Date	Topic(s)	Readings (D2L File Number)	Homework	Quizzes & Exams
14	Mon	3/9	BRASSICACEAE: Turnip, Radish, Rutabaga, Broccoli, Cauliflower, Cabbage, Kohlrabi	14		
Lab 7	**Mon**	**3/9**	**Harvest and Post Harvest**		**HW6 available (due Thurs)**	
15	Wed	3/11	CUCURBITACEAE: Cucumbers, squash, melons	15a-b		
16	Mon	3/16	FABACEAE: Snap beans and peas	16		
Lab 8	**Mon**	**3/16**	**Greenhouse Wrap-up**		**HW7 available (due Thurs)**	**QUIZ 3 (Greenhouse ID & puzzles)**
17	Wed	3/18	SOLANACEAE:Tomatoes, Peppers, Eggplant, Potatoes	17		
18	Mon	3/23	ASPARAGACEAE: Asparagus & POLYGONACEAE (Rhubarb)	18a-b		
Lab 9	**Mon**	**3/23**	**HTRC 1: Weeding equip and robotics**		**HW8 available (due Thurs)**	
19	Wed	3/25	APIACEAE: Carrots, Parsnips, Celery	19		
20	Mon	3/30	AMARYLLIDACEAE: ALLIUMS: Onions and Garlic	20a-b		
Lab 10	**Mon**	**3/30**	**HTRC 2; SOF/sunchokes/garlic; Exam Review**			
21	Wed	4/1	**EXAM 2 (classes 11- 19)**			**EXAM 2**
	Mon	4/6	**Field Trip 1: Byron Center & Hudsonville** **Large scale muck soils: onions, celery** **Small scale lettuce and value added**			
Lab 11	**Mon**	**4/6**			**HW9 available (due Thurs)**	
22	Wed	4/8	POACEAE: Sweet corn	21		
	Mon	4/13	**Field Trip 2: Monroe & Milan** **Large scale mineral: cabbage, peppers** **Small scale organic**			
Lab 12	**Mon**	**4/13**			**HW10 available (due Thurs)**	
23	Wed	4/15	Field Trip Discussion and Student Presentations			
	Mon	4/20	**Field Trip 3: Saginaw & Imlay City** **High tunnel diverse production**			
Lab 13	**Mon**	**4/20**				
24	Wed	4/22	Field Trip Discussion and Final Review			
	Mon	**4/27**	**Final Exam (3-5 PM)**			**FINAL EXAM**