

897. Readings in Asian History
Fall, Winter, Spring. 4 credits. May
reenroll for a maximum of 40 credits.

898. Directed Reading
Fall, Winter, Spring, Summer. 4 cred-
its. May reenroll for a maximum of 16 credits.
Graduate students; approval of department.
Supervised individual reading on special topics
and fields.

899. Master's Thesis Research
Fall, Winter, Spring. Variable credit.
Approval of department.

901A. Doctoral Seminar
Fall. 3(3-0) Admission to doctoral pro-
gram in history.
HST 901A, HST 901B and HST 901C constitute
a three-term seminar required of students enter-
ing doctoral program. Under guidance of disser-
tation director and course instructors student
will prepare major research paper and submit
for criticism by all participants. Grades are
given for the three terms at the end of HST 901C.

901B. Doctoral Seminar
Winter. 3(3-0) HST 901A.
Continuation of HST 901A.

901C. Doctoral Seminar
Spring. 3(3-0) HST 901B.
Continuation of HST 901B.

999. Doctoral Dissertation Research
Fall, Winter, Spring. Variable credit.
Approval of department.

HISTORY OF ART

See Art.

HORTICULTURE HRT

College of Agriculture and Natural Resources

101. Principles of Horticulture
Fall, Spring. 4(3-2) Not open to stu-
dents with credit in HRT 201.
Principles of horticultural science and horticultu-
ral crop production, as related to fruits, vege-
tables, flowers and landscape plants.

**208. Greenhouse Cut Flower
Production**
Fall. 4(3-2)
Commercial cut flower production including
scheduling, cultural conditions, equipment, and
management decisions. Laboratory provides
live crops for study and discussion.

209. Foliage Plants
Fall. 4(3-2)
Identification, culture, propagation, and utili-
zation of common foliage plants with emphasis
on species and cultivars used for interior plants-
capes.

**211. Ornamental Trees and
Narrow-leaved Evergreens**
Fall. 4(2-4)
Identification, adaptation and evaluation of
trees, deciduous shrubs, narrow-leaved ever-
greens and woody vines. Emphasis is on the aes-
thetic and functional uses of trees and shrubs in
the landscape.

**212. Ornamental Flowering Shrubs and
Broad-leaved Evergreens**
Spring. 4(2-4) HRT 211 or approval of
instructor.
Identification, adaptation and evaluation of
trees, deciduous shrubs, broad-leaved ever-
greens, woody vines and ground covers. Empha-
sis is on the flowering characteristics and
aesthetic and functional uses of plants in the
landscape.

221. Commercial Plant Propagation
Winter. 4(3-2) HRT 101.
Principles of plant propagation by seed, cuttage,
layerage, and graftage employed by nurseries;
use of growth regulators and environmental
treatments in plant propagation.

319. Small Fruit Production
(419.) Winter of odd-numbered years.
3(3-0) HRT 101, BOT 205, BOT 301.
Commercial production culture, utilization and
physiology of strawberries, grapes, blueberries
and raspberries.

320. Tree Fruit Production
Fall. 4(3-2) HRT 101, Juniors.
Commercial production of principle tree fruit
crops of Michigan with emphasis on planting,
soil management, fertilization, pruning, thin-
ning, and grafting.

325. Ornamental Plant Management
Spring. 4(3-2) HRT 101, HRT 211,
HRT 212.
Transplanting and maintenance of landscape
plants subject to stresses of urban environment.
Development of annual maintenance specifica-
tions. Identification and evaluation of herba-
ceous annuals, biennials and perennials for
landscape.

326. Herbaceous Ornamental Plants
Summer. 4(3-3) HRT 101 or BOT 205
or approval of department.
Identification, evaluation, and utilization of an-
nual, biennial, and herbaceous perennial plants
for landscape. Includes bulbs, herbs, grasses,
ferns, and cultivated plants.

330. Special Problems
Fall, Winter, Spring, Summer. 1 to 4
credits. May reenroll for a maximum of 12 cred-
its. Approval of department.
Individual work on a field, laboratory or library
research problem of special interest to the stu-
dent.

331. Selected Topics
Fall, Winter, Spring, Summer. 1 to 4
credits. May reenroll for a maximum of 12 cred-
its if different topic is taken. Approval of depart-
ment.

350. Floral Design
Spring. 2(0-4) Junior majors and ap-
proval of department.
Principles of floral design and the care and han-
dling of materials. Creation of corsages, ter-
raria, tropical planters, and home, hospital and
novelty arrangements.

**402. Principles of Weed Control for
Horticultural Crops**
Spring. 4(3-2)CEM 143, BOT 301.
Principles underlying weed control practices for
horticultural crops. Weed biology and factors
involved in biological, cultural, mechanical and
chemical control. Collection of 40 weed species
required.

408. Principles of Plant Breeding
Winter. 4(3-2) CSS 250. Interdepart-
mental with and administered by the Depart-
ment of Crop and Soil Sciences.
Application of genetics and other sciences to
breeding and improvement of agronomic and
horticultural crops.

410. Fruit Tree Physiology I
Winter of even-numbered years. 4(4-0)
Juniors, BOT 301, HRT 101.
Physiological effects of nutrition, moisture,
light, temperature and culture as related to tree
fruit crops.

412. Fruit Tree Physiology II
Winter of odd-numbered years. 3(3-0)
Juniors, HRT 101, BOT 301.
Physiology of flowering and fruit development
in woody plants with special reference to chemi-
cal and cultural methods of manipulation.

**416. Handling and Storage of
Horticultural Crops**
Winter of even-numbered years. 4(3-2)
Juniors.
Biological principles involving physical move-
ment of fresh products from farm to consumer;
physiological processes affecting maturity, qual-
ity and condition; selection and use of handling,
storage, and transport facilities.

417. Controlled Plant Environment
Fall. 3(3-0) HRT 101, BOT 301 or BOT
414.
Control of greenhouse environment and its effect
on growth and production of horticultural
crops.

**418. Controlled Plant Environment
Laboratory**
Fall. 2(1-2) HRT 417 or concurrently.
Experiments in the morphology and physiology
of greenhouse crops. Crop production and the
use of greenhouse equipment.

**434. Greenhouse Container-Grown
Plant Production**
Winter. 4(3-2) HRT 418 or approval of
department.
Principles of flower crop physiology; manage-
ment of container-grown plant production.

**435. Commercial Bedding Plant
Production**
Spring of odd-numbered years. 4(3-2)
HRT 417, HRT 418, HRT 434.
Production and marketing of bedding plants. In-
cludes germination, soils, transplanting, envi-
ronmental factors, production practices, major
species, structures, equipment, systems, prob-
lems, economics and marketing. One field trip
required.

440. Nursery Management
Fall. 3(2-2) Juniors.
Management practices applied to wholesale nur-
sery production and marketing. One all-day
field trip to visit nurseries is required.

**Descriptions — Horticulture
of
Courses**

452. Warm Season Vegetables
Spring, 3(3-0) HRT 101, BOT 301, CSS 210.

Warm season vegetable crops with emphasis on botany, taxonomy, morphology, growth processes, production, harvesting, handling, quality and composition.

453. Warm Season Vegetables Laboratory
Spring, 1(0-2) HRT 452 or concurrently.

Identification of seeds and plants and factors affecting germination, sex expression, premature flowering, bulb and tuber formation.

456. Cool Season Vegetables
Fall, 3(3-0) HRT 101, BOT 301, CSS 210.

Cool season vegetable crops with emphasis on botany, taxonomy, morphology, growth processes, production, harvesting, handling, quality and composition.

457. Cool Season Vegetables Laboratory
Fall, 1(0-2) HRT 456 or concurrently.

Mineral nutrition, fertilizer placement and sources, herbicide action, weed competition, plant identification and post-harvest conditions for vegetables.

801. Research Procedures in Plant Science
Winter, 4(3-2) Approval of department.

Orderly approach to problems of biological research in relation to basic principles of research.

808. Physiology of Horticultural Crops
Winter of even-numbered years, 4(3-2) BOT 415.

Physiology of grafting, juvenility, flowering of woody plants, fruiting, senescence, bud and seed dormancy as related to horticultural crops. Emphasis on critical review of literature.

810. Seminar
Fall, Winter, 1(0-1)

814. Plant Breeding and Genetics Seminar
Winter, 1(1-0) May reenroll for a maximum of 2 credits. Approval of department. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry. Administered by the Department of Crop and Soil Sciences.

815. Selected Topics in Plant Breeding and Genetics
Fall, Winter, Spring, Summer, 2 to 5 credits. May reenroll for a maximum of 12 credits if different topics are taken. Approval of department. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry. Administered by the Department of Crop and Soil Sciences.

Selected topics in plant breeding including: host-plant resistance, nutrition and quality, computerized records and data analysis, classical literature and strategies for improving field, horticulture and forestry crops.

816. Special Problems in Plant Breeding and Genetics

Fall, Winter, Spring, Summer, 1 to 3 credits. May reenroll for a maximum of 8 credits. Approval of department. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry.

Students may conduct research in a laboratory, greenhouse or field-plot on a selected subject or study selected published literature under the supervision of a faculty member.

821. Genetic Concepts in Plant Breeding

Fall, 3(3-0) CSS 250 or ZOL 441. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry. Administered by the Department of Crop and Soil Sciences.

Genetic structure of plant populations, gene action, inbreeding, outbreeding, heterosis, linkage and recombination, genetic architecture of traits, genetic distance.

822. Plant Breeding Systems
Winter, 3(3-0) CSS 821, STT 422. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry.

Breeding systems for improvement of self and cross pollinated and of vegetatively propagated crops. The genetic basis for parent selection.

823. Plant Breeding Methods
Spring, 3(3-0) HRT 822, STT 423. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry. Administered by the Department of Crop and Soil Sciences.

Methods, strategies and practices in organization and operation of plant breeding programs. Emphasis on practical application of classical, modern and futuristic approaches to plant breeding.

825. Post Harvest Physiology
Winter of odd-numbered years, 4(3-2)

Biochemical and biophysical changes associated with the maturation, ripening and senescence of harvested horticultural plants.

830. Special Research Problems
Fall, Winter, Spring, Summer, 1 to 12 credits. May reenroll for a maximum of 12 credits. Approval of department.

831. Selected Topics
Fall, Winter, Spring, Summer, 1 to 4 credits. May reenroll for a maximum of 12 credits if different topic is taken. Approval of department.

836. Evolution of Crop Plants
Spring of odd-numbered years, 3(3-0) CSS 821 or approval of department. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry.

Cultural and biological aspects of evolution under domestication; origin and diversity of cultivated plants.

838. Tissue Culture for Plant Breeding
(840.) Winter of even-numbered years, 3(2-2) BOT 414, CSS 821. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry.

The application of plant cell, protoplast and tissue culture methodologies and principles to crop improvement.

844. Plant Organelle Genetics
Winter of odd-numbered years, 3(3-0) Approval of department. Interdepartmental with Genetics and the departments of Botany and Plant Pathology, Crop and Soil Sciences, and Forestry.

Organization, structure, function, heredity, molecular biology and manipulation of chloroplasts and mitochondria. Biological interactions between the nucleus and organelles.

850. Plant Interactions in Agroecosystems
Winter of odd-numbered years, 3(3-0) BOT 450, BCH 401, CSS 402.

Interactions between plants affecting mortality and plastic responses in horticultural, agronomic, and forest systems, including interference and symbiosis.

899. Master's Thesis Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

940. Theoretical Population Genetics
Winter of even-numbered years, 4(4-0) MTH 113, STT 422, CSS 821. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry. Administered by the Department of Forestry.

Discussion of mathematical theories in population genetics and experimental works on natural and laboratory populations.

941. Quantitative Genetics in Plant Breeding
Spring of even-numbered years, 4(4-0) STT 423, CSS 823 or approval of department. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry. Administered by the Department of Crop and Soil Sciences.

Calculation and implication of genetic parameters. Linkage. Coancestry and inbreeding. Covariance between relatives. Heritability and selection. Genotype by environment interaction. Emphasis on relationship of quantitative genetics to plant breeding.

944. Physiological Genetics
Winter, 3(3-0) BOT 413; CSS 821. Interdepartmental with the departments of Crop and Soil Sciences, and Forestry. Administered by the Department of Forestry.

Control of variation in higher plants including adaptive physiology, quantitative genetics, growth correlation, biochemical genetics, hybrid physiology, and geneecology.

999. Doctoral Dissertation Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**HOTEL, RESTAURANT AND
INSTITUTIONAL
MANAGEMENT HRI**

**College of Business and Graduate
School of Business
Administration**

102. Introduction to the Service Industries
Fall, 3(3-0) Not open to Seniors.

Management careers and opportunities in hotel, motel, food service, health facilities, club, recreational centers, tourism and other public hospitality businesses. Includes front office practice. Local field trip required.