853. ***Readings in Medieval History***
Fall, Winter, Spring. 4 credits.

854. ***The Emergence of Commercial Capitalism***
Winter of odd-numbered yers. 3(3-0) EC 318, EC 324. Interdepartmental with and administered by the Department of Economics.
The rise of the mercantilist economies of Europe with stress on the growth of internal and international trade and finance during the 16th and 17th centuries.

855. ***The Industrial Revolution in Europe***
Winter of even-numbered years. 3(3-0) EC 318, EC 324. Interdepartmental with and administered by the Department of Economics.
The preconditions that led to the momentous changes in agriculture and industry in Europe from 1700-1914.

857. ***Readings in Renaissance and Reformation***
Fall, Winter, Spring. 4 credits.

863. ***Readings in Early Modern European History***
Fall, Winter, Spring. 4 credits.

864. ***Readings in Recent European History***
Fall, Winter, Spring. 4 credits.

867. ***Readings in Russian History***
Fall, Winter, Spring. 4 credits.

873. ***Readings in the History of International Relations***
Fall, Winter, Spring. 4 credits.

894. ***Reading in African History***
Fall, Winter, Spring. 4 credits.

897. ***Readings in Asian History***
Fall, Winter, Spring. 4 credits.

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

899. ***Research***
Fall, Winter, Spring. Variable credit. Approval of department.

901A. ***Doctoral Seminar***
Fall. 3(3-0) Admission to doctoral program in history.
HST 901A, HST 901B and HST 901C constitute a three-term seminar required of students entering doctoral program. Under guidance of dissertation 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.

920. ***Seminar in British and British Empire History***
Fall, Winter, Spring. 5 credits.

921. ***Seminar in Russian and East European History***
Fall, Winter, Spring. 5 credits.

928. ***Seminar in American History***
Fall, Winter, Spring. 5 credits.

931. ***Seminar in African History***
Fall, Winter, Spring. 5 credits.

932. ***Seminar in Asian History***
Fall, Winter, Spring. 5 credits.

933. ***Seminar in the History of International Relations***
Fall, Winter, Spring. 5 credits.

952. ***Seminar in Ancient History***
Fall, Winter, Spring. 5 credits.

966. ***Seminar in Modern European History***
Fall, Winter, Spring. 5 credits.

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

HISTORY OF ART

See Art.

HORTICULTURE HRT

College of Agriculture and Natural Resources

201. ***Fruits, Vegetables, and Ornamental Plants for Outdoor Home Plantings***
Spring. 4(3-2)
Principles and practices used in producing fruits, vegetables, flowers, trees, shrubs and vines in small gardens, containers, and the home landscape. Indices for edible quality of home grown fruits and vegetables.

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

212. ***Ornamental Flowering Shrubs and Broad-leaved Evergreens***
Spring. 4(2-4)
Identification, adaptation and evaluation of trees, deciduous shrubs, broad-leaved evergreens, woody vines and ground covers. Emphasis is on the flowering characteristics and aesthetic and functional uses of plants in the landscape.

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

230. ***Indoor Plants and Flowers***
(323.) Fall, Winter, Spring. 3(1-4) Horticulture majors will be required to learn scientific names of plants.
Identification, culture and propagation of plants; principles of flower arrangement, construction of dish gardens and hanging baskets, and the forcing of bulbs.

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

324. ***Mass Merchandising Ornamental Plants***
Spring. 2(1-2) HRT 211 or HRT 212.
History of merchandising ornmental plants; types of garden centers, impact of cultural information and labeling on consumer. The manager, advertiser, and buyer decision making process. One day field trip required.

325. ***Ornamental Plant Management***
Spring. 4(3-2) HRT 211 or HRT 212.
Transplanting and maintenance of landscape plants subject to stresses of urban environment. Development of annual maintenance specifications. Identification and evaluation of herbaceous annuals, biennials and perennials for landscape.

330. ***Special Problems***
Fall, Winter, Spring, Summer. 1 to 4 credits. My reenroll for a maximum of 12 credits. Approval of department.
Individual work on a field, laboratory or library research problem of special interest to the student.

331. ***Special 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.
Topics will be selected from flower, vegetable and fruit production; landscape plant culture; horticulture therapy; pesticide management; post harvest physiology; and horticulture business management.

350. ***Floral Design***
Spring. 2(0-4) Junior majors and approval of department.
Principles of floral design and the care and handling of materials. Creation of corsages, terraria, tropical planters, and home, hospital and novelty arrangements.

402. ***Principles of Weed Control for Horticultural Crops***
Fall of odd-numbered years. 4(3-2) CEM 132, BOT 301.
Principles underlying weed control practices for horticultural crops. Factors involved in mechanical, chemical and biological control.

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

411. Fruit and Landscape Crop Physiology I
Fall. 4(3-2) Juniors.
Physiological effects of moisture and nutritional environments related to fruit crops and woody perennial plants.

412. Fruit and Landscape Crop Physiology II
Winter of odd-numbered years. 3(3-0) Juniors, BOT 301, not open to students with credit in HRT 807 or HRT 808.
Physiology of flowering and fruit development in woody plants with special reference to chemical and cultural methods of manipulation.

416. Handling and Storage of Horticultural Crops
Winter. 4(4-0) Juniors.
Biological principles involving physical movement of fresh products from farm to consumer; physiological processes affecting maturity, quality and condition; selection and use of handling, storage, and transport facilities.

417. Controlled Plant Environment
Fall. 3(3-0) 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. 1(0-2) HRT 417 or concurrently.
Experiments in the morphology and physiology of greenhouse crops. Crop production and the use of greenhouse equipment.

419. Small Fruit Production
Winter. 3(3-0) Juniors.
Commercial production culture, utilization and physiology of strawberries, grapes, blueberries and raspberries.

424. Pesticide and Growth Regulating Chemicals for Horticultural Crops
Spring. 3(2-2) Juniors.
Spray and dust equipment and application; pesticide and growth regulating chemicals, their use in the growing of horticultural crops, and influence on the physiology of the plant.

433. Greenhouse Cut Flower Production
Winter of even-numbred years. 4(3-2) May reenroll for a maximum of 8 credits. HRT 417 or approval of department.
Principles of flower crop physiology; includes control of environmental conditions, and emphasizes the management of cut flower production.

434. Greenhouse Container-Grown Plant Production
Winter of odd-numbered years. 4(3-2) HRT 417 or approval of department.
Principles of flower crop physiology; includes control of environmental conditions and emphasizes the management of container-grown plant production.

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

452. Warm Season Vegetables
Spring. 3(3-0) 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, permature flowering, bulb and tuber formation.

456. Cool Season Vegetables
Fall. 3(3-0) 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.

807. Physiology of Horticultural Crops I
Fall. 4(3-2) BOT 415.
Physiology and biochemistry of bulbous crops; morphological aspects and techniques of horticultural crops; sex expression and seed production.

808. Physiology of Horticultural Crops II
Winter. 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.

809. Physiology of Horticultural Crops III
Spring. 4(3-2) BOT 415.
Physiology of abscission, winter hardiness, water and nutrient relations, crop productivity and problems concerned with crop production.

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

825. Post Harvest Physiology
Spring. 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. Variable credit. 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.

899. Research
Fall, Winter, Spring, Summer. Variable credit. Approval of department.

951. Cytogenetics in Plant Breeding
Winter of odd-numbered years. 3(3-0) BOT 427, BOT 828, or approval of department. Interdepartmental with and administered by the Department of Crop and Soil Sciences.
Application of cytogenetic principles to plant breeding. Significance of recombination, role of induced mutations, polyploid, chromosome substitution, and aneuploid analyses as they apply to the field of plant breeding.

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

HOTEL, RESTAURANT AND INSTITUTIONAL MANAGEMENT HRI

College of Business

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.

235. Service Industries Equipment and Utilities
Fall, Winter. Summer of even-numbered years. 4(4-0) MTH 108 or MTH 111. Not open to Seniors.
Engineering in food and lodging industry, emphasizing utilities, machinery characteristics and environment.

245. Food Production Science
Fall, Spring. 4(4-0) HNF 100.
Interrelationships of the physical, biological and chemical principles relevant to the food service industry.

261. Dimensions of Tourism
Fall, Winter. Summer of odd-numbered years. 4(4-0) EC 201 or concurrently; not open to Seniors.
Forces which influence the international and domestic hospitality, leisure, travel and recreation industries. Socio-economic models and measurement of regional impact, demand and supply.

265. Food Production Standards
Fall, Spring. 4(4-0) HRI 245.
Interrelationships of the environmental, microbiological and physiological principles relevant to the food service industry.

303. Service Industry Accounting
Fall, Spring. 4(4-0) AFA 391 or concurrently; not open to Seniors.
Principles of accounting applied to service industries. Financial statement analysis and cash flow concepts. Managerial accounting emphasized.