

402. Principles of Weed Control
Fall. 3(2-2) Juniors. Interdepartmental and administered jointly with Crop Science.

Comprehensive study of principles underlying weed control practices, and factors involved in both mechanical and chemical control.

408. Principles of Plant Breeding
Spring. 4(3-2) CSC 250. Interdepartmental and administered jointly with Crop Science.

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. 4(3-2) Juniors.

Physiology of flowering and fruit development in woody plants.

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. 4(2-4) BOT 301 or 414.

Control of greenhouse environment and its effect on growth and production of horticultural crops.

419. Small Fruits
Winter. 3(3-0) Juniors.

Production, culture, utilization and physiology of strawberries, grapes, blueberries and raspberries.

421. Principles of Plant Propagation
Winter. 4(3-2) Juniors.

Principles of plant propagation by seed, cuttage, layerage, and graftage; scion and stock relationship; stocks for fruit and ornamental plants; practices employed by nurseries in propagation of plants.

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.

432. Vegetable Crop Physiology
Spring. 4(3-2) May re-enroll for a maximum of 8 credits. Juniors.

Physiological principles involved in and related to the production of high quality vegetables.

433. Greenhouse Cut Flower Production
Winter of even-numbered years. 4(3-2) May re-enroll for a maximum of 8 credits.

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) 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 of even-numbered years. 3(2-2)

Management practices employed by wholesale, retail and landscape nurseries. Field trips to nurseries required.

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 of plant organs and tissue development, sexual reproduction, rooting, bulb growth and development and grafting of horticultural crops.

808. Physiology of Horticultural Crops II
Winter. 4(3-2) BOT 415.

Physiology of juvenility, flowering and fruiting of herbaceous and woody plants, senescence and bud and seed dormancy as related to horticultural crops.

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. Advanced Horticultural Studies
Fall, Winter, Spring, Summer. Variable credit. 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, 828, or approval of department. Interdepartmental with and administered by Crop Science.

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)

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
(335.) Fall, Winter, Summer of even-numbered years. 4(4-0) MTH 108.

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.

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) 245; HNF 100.

Interrelationships of the environmental, microbiological and physiological principles relevant to the food service industry.

303. Service Industry Accounting
(203A., 203.) Fall, Winter. 4(4-0) AFA 202, 391.

Principles of accounting applied to service industries. Financial statement analysis and cash flow concepts. Managerial accounting emphasized.

305. Lodging Management I
Fall, Winter, Summer of even-numbered years. 4(4-0) MGT 302.

Ethics and policies. Organization and manpower planning and development. Employee compensation and benefits as they apply to hospitality organization.

306. Lodging Management II
Winter, Spring, Summer of even-numbered years. 4(4-0) 305.

Continuation of 305. Supervision and activation of employees with emphasis on human relations, collective bargaining—negotiations and operating under the contract.

337. Management Systems for the Hospitality Industry
Winter, Spring, Summer of even-numbered years. 4(4-0) MGT 302 and Juniors.

Evaluation and appraisal of management systems currently in use and the development of new management systems for the hospitality industry.

350. Work Analysis and Design
(350A.) Fall, Winter, Summer of odd-numbered years. 4(4-0).

Work methods and layout. Includes flow analysis, time and motion study, work simplification, data processing and setting of standards.

375. Marketing of Hospitality Service
(375A., 375B.) *Fall, Spring, Summer.*
4(4-0)

Applications of marketing concepts and techniques to businesses in the hospitality sector. Uses and limitations of various promotional forces such as advertising, field selling, merchandising, sales promotion, and in-house selling.

405. Food and Beverage Management
(447.) *Winter, Spring, Summer of odd-numbered years.* 4(4-0) 303, 306

Duties and responsibilities of the manager in restaurant and catering operations. Management methods in goal setting, forecasting, controlling quality and costs; establishing policies to create favorable acceptance and profitable operation.

435. Food Production Systems
(345.) *Fall, Spring, Summer of even-numbered years.* 6(4-6) 405, 472.

Recognition and achievement of quality in development of systematic relationships between menu items, time, labor, equipment and costs in quantity food production. Quality procurement policies for food, beverages and related items. Field trips required.

448. Passenger Transportation Systems
Winter. 4(4-0) *Interdepartmental with and administered by the Marketing and Transportation Administration Department.*

Composition and objectives of principal passenger travel markets: Analysis of carrier service, pricing and promotional practices and problems, competitive and cooperative relations. Review of major proposals for change and expansion of service systems.

455A. Food Evaluation
Spring. 4(4-0) *Approval of school.*

History of foods and related physiological and psychological theories and their application to quality consideration.

455B. Beverage Evaluation
Winter. 4(4-0) *Approval of school.*

History of beverages and related physiological and psychological theories and their application to quality considerations.

461. Tourism Principles and Practices
Winter, Summer of odd-numbered years. 4(4-0) EC 200 or 201.

Evolution of tourism as an industry, correlation theory of tourism, tourism organizations, planning and development. Field trip required.

466. Tourism Planning and Development
Fall, Spring. 4(4-0) 261 or 461 or 448.

Tourism resource characteristics, location, and market demand considerations. Analysis of development potential, planning processes and procedures, capital and personnel requirements, and tourism destination developments.

472. Design and Layout
Winter, Spring. 4(4-0)

Conceptualization, design, layout and specification of service industry facilities.

473. Operations Research in the Service Industries
Fall, Spring, Summer of odd-numbered years. 4(3-0) 305; MTA 318.

Application of marketing and operational research techniques to service industry management problems, emphasizing quantitative and analytical decision models designed for specific operations in this field.

490. Operational Analysis in the Hospitality Industry
Fall, Spring. 4(4-0) 306; Seniors.

Advanced management concepts, leading to an understanding of decision theory as applied to directed investigation into specific hospitality operations.

499. Independent Study
Fall, Winter, Spring, Summer. 1(1-0) to 15(1-0) *May re-enroll for a maximum of 15 credits. Approval of school.*

Research in any phase of food, lodging, hospitality, tourism or health facilities operations.

811. Policy Formulation and Organization
Spring. 4(4-0) 875, 888; MGT 806.

Development of goals, objectives and consistent business policies for the creation of dynamic and effective organizations for all phases of service industries.

861. Economic Implications of Tourism
Fall. 4(4-0) EC 860 or concurrently.

Economic, historical, philosophical, psychological, governmental and educational aspects and satisfactions of travel. The promotion of tourism; the business of travel and its relationships to the hospitality industry.

875. Innovation in Hospitality Marketing
Spring. 4(4-0) MTA 805 or concurrently.

Changing environment of the hospitality industry is examined and new developments in marketing are analyzed for potential innovative application in the hospitality sector.

888. Financial Management for the Service Industries
Winter. 4(4-0) AFA 840.

Covers leasing, franchising, tax considerations, planning to meet financial needs from internal sources or from capital markets, management of current and capital assets, including inventories and operational equipment.

890. Special Problems
Fall, Winter, Spring, Summer. 1 to 15 credits. *Approval of school.*

Opportunity for the outstanding student to engage in depth analysis of a service industry area of his choice that will result in a positive contribution to the field.

896. Problems of the Service Industries
Winter. 4(4-0) 888 or concurrently.

Formulation of plans based on analysis of situations and trends applying general business principles. Discussion of actual cases with leaders in service industries.

898. Facilities Programming
Fall. 4(4-0).

Application of principles and concepts drawn from many related disciplines to planning and operation of housing and food production systems, utilizing optimum physical and human resources.

HUMAN DEVELOPMENT H D
College of Human Medicine

520. Genetics Clinic
Fall, Winter, Spring, Summer. 1 to 3 credits. *May re-enroll for a maximum of 9 credits.*

Students will interview and examine patients with inheritable disorders, perform related laboratory diagnostic procedures, and participate in genetic counseling conferences and discussions.

590. Special Problems in Human Development
Fall, Winter, Spring, Summer. 1 to 6 credits. *May re-enroll for a maximum of 12 credits. Human medicine students.*

Each student will work under direction of a staff member on an experimental, theoretical or applied problem.

608. Pediatric Specialty Clerkship
Fall, Winter, Spring, Summer. 1 to 17 credits. *May re-enroll for a maximum of 43 credits. HM 503; primary clerkship.*

Clinical experience with pediatric patients under the direction of members of the faculty of the Department of Human Development and community pediatricians. Fall, Saginaw. Winter, Lansing. Spring, Grand Rapids. Summer, Flint.

609. Human Development and Pediatric Sub-Specialties
Fall, Winter, Spring, Summer. 1 to 17 credits. *May re-enroll for a maximum of 34 credits. H M 602.*

Elected experiences in selected clinical and basic sciences related to pediatrics and human development.

**HUMAN ENVIRONMENT
AND DESIGN HED**

College of Human Ecology †

143. Design for Living I
(140, TRA 140.) *Fall, Winter, Spring.* 3(3-0).

Perceptual development including analytical judgment through the study of design, a vital part of the matrix of living. Design components and principles as they relate to the function and ideas in the various phases of man's environment and daily life.

144. Design for Living II
Fall, Winter, Spring. 3(1-4) 143.

Use of design elements and application of principles in creative problems and media.

152. Principles of Clothing Construction
(TRA 152.) *Fall, Winter, Spring.* 3(2-2)

Principles of clothing construction related to fit, fabric and garment assembling.

171. Textiles for Consumers
Fall, Winter, Spring. 4(3-0).

A programmed sequence develops decision-making abilities in the selection of textile alternatives for various uses. Consumer-oriented concepts of durability, comfort, care and aesthetic appearance are used to evaluate products.

201. Contemporary Retail Community
(TRA 201.) *Fall, Winter, Spring.* 3(3-0) *Sophomores.*

The retail community as it responds with a supply of goods and services to the needs of the consumer.

†Name changed July 1, 1970. Formerly College of Home Economics.