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-numbered years. 4(3-2) May re-enroll for a maximum of 8 credits. 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) 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 required.

450. Vegetable Production
Spring. 3(3-0) CSS 210; BOT 301.

Commercial methods of production of vegetable crops, with emphasis on relation of plant physiology, soils, nutrition, and botany to production of high quality vegetables.

451. Vegetable Production Laboratory
Spring. 1(0-2) 450 or concurrently: approval of instructor.

Laboratory exercises emphasizing factors affecting germination, sex expression, bulb formation, flowering and seed stalk formation, growth and development, and post-harvest quality of vegetable crops.

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 re-enroll for a maximum of 12 credits. Approval of department.

831. Selected Topics.
Fall, Winter, Spring, Summer. 1 to 4 credits. May re-enroll 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, 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 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) 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.

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) CPS 110, EC 200.

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
Fall, Winter. Summer of odd-numbered years. 4(4-0) 235.

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

375. Marketing of Hospitality and Travel Services
Fall, Winter, Spring, Summer. 4(4-0)

Applications of marketing concepts, methods and techniques in the hospitality and travel 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
Winter, Spring. Summer of even-numbered years. 4(4-0) 265, 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
Fall, Winter, Spring. Summer of even-numbered years. 6(4-6) FSC 242, HRI 405.

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) MTA 300 or HRI 375. Interdepartmental with and administered by the Department of Marketing and Transportation Administration.

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

Fall. 4(4-0) Approval of school.

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

462. Tourism Management

Winter. 4(4-0) 261.

Tourism organizations, functions, and policy determination, tour wholesaling and retail travel agency management. Field trip required.

466. Tourism Planning and Development

Fall, Spring. 4(4-0) 261.

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) 350.

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

473. Operations Research in the Service Industries

Fall, Spring. Summer of odd-numbered years. 4(4-0) 337, STT 316.

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) 405, 800 hours work experience requirement. HRI majors only.

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 to 4 credits. May re-enroll for a maximum of 8 credits. Majors and 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 ECOLOGY (College of) HEC

201. Family in Its Near Environment

Fall, Winter, Spring. Summer of odd-numbered years. 3(3-0) Basic courses at freshman level in college required in each major.

Foundations of human ecology are explored using conceptual frameworks of family as ecosystem and human development. Interrelationships of ecosystems which focus on families are examined.

301. Management and Decision Making in the Family

(FE 331.) Fall, Winter, Spring. Summer of even-numbered years. 3(3-0) 201.

Presentation of the integrated nature of home management; concerns, values, and goals as reflected in decision-making about family resources.

401. Human Ecological Approach to Contemporary Issues

(F E 401.) Fall, Winter, Spring, Summer. 3(3-0) 201, 301.

Establishment of interrelationships among the human ecological professions as each profession identifies meaningful but different approaches to issues.

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 or approval of department.

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 602; 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

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

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.