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.

501. 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.

505. Growth and Development
Winter. 4(3-2) BOT 301 or 414;
415. Effects of environment and treatment with growth regulating chemicals upon morphology and physiology of horticultural plants, and the roles of endogenous growth regulators in plant development.

809. Water and Nutritional Requirements
Fall. 4(3-2)
Factors affecting nutrition and methods and techniques for evaluating nutrient requirements for crop production.

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

825. Post Harvest Physiology
Spring. 4(3-2)
Biochemical and physiological 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 827, 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, polyplody, 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

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.

203. Service Industries Equipment and Utilities
Fall, Winter. Summer of even-numbered years. 4(4-0) MTH 106.
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 291.
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
(263A, 263B.) Fall, Winter. 4(4-0) AFA 208; 209.

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.

323. Health Facilities Externship
Fall, Winter, Spring, Summer. Zero credit U 2 credits. 203, approval of health facilities management coordinator.
At least 800 hours of actual experience in junior-senior year, in a health care facility or related organization. Application of theoretical concepts to practical situations.

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

400H. Honors Work
Fall, Winter, Spring, Summer. Variable credit. Approval of school.

405. Food and Beverage Management
(447.) Winter, Spring. Summer of odd-numbered years. 4(4-0)
255, 265, 306, 309
Duties and responsibilities of the manager in restaurant and catering operations. Management methods in goal setting, forecasting costs, 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. 4(4-0)
Recognition and achievement of quality in development of systematic relationships between menu items, time, labor, equipment and costs in quantity food production. Procurement policies for food, beverages and related items. Field trips required.

445. 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.

481. 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.

486. Tourism Planning and Development
Fall, Spring. 4(4-0) 261 or 491 or 448.
Tourism resource characteristics, location, and market demands. Analysis of development potential, planning processes and procedures, capital and personnel requirements, and tourism destination developments.

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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; 5TA 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) 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 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, 898; MGT 806.  
Development of goals, objectives and consistent business policies for the creation of dynamic and effective organizations for all phases of service industries.

888. Financial Management for the Service Industries  
Winter. 4(4-0) AFA 640.  
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. 4(4-0)  
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.

900. 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.

501. Contemporary Retail Community (TRA 202.) 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.

502. Facilities Programming  
Fall, Winter, Spring, Summer. 1 to 3 credits. May re-enroll for a maximum of 9 credits.  
Application of principles and concepts drawn from many related disciplines to planning and operation of hospitality 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 studies. 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 45 credits.  
Clinical experience with pediatric patients under the direction of members of the faculty of the Department of Human Development and community pediatricians. Fall, Spring, Summer, Grand Rapids. Summer, Flint.

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, Summer. 2(3-0)  
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.

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