

- 402. Principles of Weed Control for Horticultural Crops**
Fall. 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.
- 410. Fruit Tree Physiology**
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. Tree Crop Flower and Fruit Physiology**
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 chemical and cultural methods of manipulation.
- 416. Handling and Storage of Horticultural Crops**
Spring. 4(3-2) 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) 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.
- 419. Small Fruit Production**
Winter. 3(3-0) HRT 101, BOT 205, BOT 301.
Commercial production culture, utilization and physiology of strawberries, grapes, blueberries and raspberries.
- 433. Greenhouse Cut Flower and Foliage Plant Production**
Spring of even-numbered years. 4(3-2) *May reenroll for a maximum of 8 credits. HRT 418 or approval of department.*
Principles of cut flower and foliage plant physiology; emphasizes production management.
- 434. Greenhouse Container-Grown Plant Production**
Winter. 4(3-2) HRT 418 or approval of department.
Principles of flower crop physiology; management 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. Includes germination, soils, transplanting, environmental factors, production practices, major species, structures, equipment, systems, problems, economics and marketing. One field trip required.
- 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.
- 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.
- 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.*
- 840. Tissue Culture for Plant Breeding**
Winter of even-numbered years. 3(2-2) BOT 414, HRT 408.
The application of plant cell, protoplast and tissue culture methodologies and principles to crop improvement.
- 899. Master's Thesis 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. Doctoral Dissertation 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.
- 203. Service Industry Accounting**
(303) Fall, Spring. 4(4-0) AFA 202; *not open to Seniors.*
Principles of accounting applied to service industries. Financial statement analysis and cash flow concepts. Managerial accounting emphasized.
- 237. Management of Lodging Facilities**
Fall, Winter, Spring. 4(4-0) *Sophomore majors.*
An analysis of the guest cycle through examination of various operating departments within a hotel. Functions of revenue and nonrevenue departments with emphasis on managing departmental interrelationships.

**Descriptions – Hotel, Restaurant and Institutional Management
of
Courses**

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.

252. Professional Experience I

Fall, Winter, Spring, Summer. 1 credit. Approval of school.

A written report based on prior 400 hours of approved professional work experience in the hospitality 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.

307. Supervision in the Hospitality Industry

Fall, Winter, Spring, Summer of even-numbered years. 4(4-0) HRI 237, MGT 302.

The direction of people at work in the hospitality industry. Special applications of supervisory management skills in hotels, restaurants and other hospitality industry establishments.

335. Service Industries Equipment and Utilities

(235.) Fall, Winter, Summer of even-numbered years. 4(4-0) MTH 108 or MTH 111; HRI 237.

Engineering in food and lodging industry, emphasizing utilities, machinery characteristics and environment.

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.

353. Professional Experience II

Fall, Winter, Spring, Summer. 1 credit. HRI 252, approval of school. Must be completed before enrollment for final term of the senior year.

A written report based on prior 400 hours of approved professional work experience in the hospitality industry.

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.

392. Managerial Finance for the Hospitality Industry

Fall, Winter, Spring. 4(4-0) AFA 391, HRI 203.

Basic financial concepts applied to the hospitality management industry. Methods of expansion; franchises, condominiums, leases and management contracts. Financial aspects of feasibility studies. Financial ratios specific to the hospitality industry.

405. Food and Beverage Management

Winter, Spring, Summer of even-numbered years. 4(4-0) HRI 265, HRI 203.

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 operations.

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.

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) HRI 261.

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

463. Tourism Distribution Management

Fall. 4(4-0) HRI 261.

Component channels of the tourism distribution system. Functional interrelationships of these channels with emphasis on increasing distribution effectiveness. Field trips required.

466. Tourism Planning and Development

Fall, Spring. 4(4-0) HRI 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) HRI 335.

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) HRI 337, MTA 317.

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.

475. Promotion of Hospitality Services

Fall, Winter, Spring, Summer of odd-numbered years. 4(4-0) HRI 375.

Advertising, personal selling, sales promotion, merchandising, public relations, and publicity to compete effectively for individual and group sales in the hospitality industry.

490. Operational Analysis in the Hospitality Industry

Fall, Spring. 4(4-0) HRI 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 reenroll for a maximum of 8 credits. Majors and approval of school.

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

805. Advanced Foodservice Management

Winter. 4(4-0) HRI 435.

Administrative and technical management of foodservices. Emphasis on operation analysis and problem solving.

807. Workforce Management in the Hospitality Industry

Spring. 4(4-0) HRI 337.

Developing and maintaining a productive workforce for hospitality firms. Emphasis on supervisory skills and labor relations.

835. Energy Management in Hospitality Facilities

Fall. 4(4-0)

Achieving energy efficiency through system analysis and design. Includes energy audits and design problems.

837. Advanced Lodging Management

Spring. 4(4-0) HRI 337.

Administrative and technical management of hotels. Emphasis on operations and analysis and problem solving.

861. Advanced Travel and Tourism Management

Fall. 4(4-0) EC 860 or concurrently.

Tourism as a national and international generator of demand for hospitality services. Social and economic impact of tourism on destination areas.

875. Innovation in Hospitality Marketing

Spring. 4(4-0) MTA 805 or concurrently.

Application of marketing concepts to the hospitality sector, with special emphasis on the role of promotion in the hospitality marketing process.

888. Financial Management for the Service Industries

Winter. 4(4-0) AFA 840.

Preparation and interpretation of financial statements, budget preparation and analysis of budgetary variances. Financial aspects of hospitality business expansion, franchising contracts, feasibility studies, and valuation considerations.

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.

**HUMAN ECOLOGY HEC
(COLLEGE OF)**

201. Family in Its Near Environment
(F E 110.) Fall, Winter, Spring. Summer of odd-numbered years. 3(3-0) Sophomores.
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.

HUMAN ENVIRONMENT AND DESIGN HED

College of Human Ecology

143. Design for Living I
Fall, Winter, Spring. 3(3-0)
Perceptual development including analytical judgement 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) HED 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.

201. Contemporary Retail Community
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.

203. Selected Non-Textile and Apparel Merchandise
Winter, Spring. 3(3-0) HED 143.
Selected non-textile and apparel merchandise as it fulfills consumer needs and expectations.

210. Environmental Design: Space, Color and Texture
Fall, Winter. 3(3-0) HED 144 or approval of department.
Space, color and texture as components of human environment, their effect upon and use by man.

211. Environmental Design: Space, Color and Texture--Laboratory
Fall, Winter, 2(2-0) HED 210 concurrently.
Discussion and demonstration of space, color and texture as components of human environment, their effect upon and use by man.

213. Synthesis of Environmental Design Elements
Winter, Spring. 2(2-0) HED 210.
The synthesis of design elements, space, shape, color and texture, and their organization as they are related to man's near environment.

214. Synthesis of Environmental Design Elements--Laboratory
Winter, Spring. 2(2-0) HED 213 concurrently.
Discussion and demonstration of design elements, space, shape, color and texture, and their organization as they are related to man's near environment.

220. Interior Space Design
Fall, Winter. 3(0-6) HED 210 or concurrently.
Basic designing and drawing of interior space in relationship to human needs.

221. Interior Color and Texture Design
Winter, Spring. 3(0-6) HED 220 or concurrently.
The manipulation and development of color and texture as components of environmental space design.

222. Basic Interior Design Synthesis
Spring. 3(0-6) HED 221.
Experimentation and representation of space, color and texture as they relate to environmental interior design.

239. Housing Conservation
Spring. 3(3-0) Interdepartmental with and administered by Agricultural Engineering Technology.
Skills and techniques in conserving, repairing and remodeling existing housing. Structural components of housing and evaluation of housing structure.

252. Experimental Clothing Construction
Winter, Spring. 3(2-2) HED 152 or pass departmental placement examination.
Application of principles of clothing construction with emphasis on fitting, alteration and couture construction techniques. Experimental execution and evaluation of techniques.

254. Contemporary Fashion Analysis
Fall, Winter, Spring. 3(2-2) HED 143 or approval of department.
Analysis of fashion as evidence of a dynamic relationship between man and his environment, costume as an aesthetic expression, a sociological phenomenon, and a coordinating factor for the consumer market.

256. Survey of World Dress
Fall, Winter, Spring. 3(3-0)
Clothing and its relationship to the physical body, to aesthetic interests of humans, and to societal type. Concepts amplified through cross-cultural case studies.

302. Clothing and Textiles Production and Distribution
(402.) Fall, Winter. 3(3-0) Juniors.
Historical development of the foreign and domestic apparel industries. Present organization of the apparel industry in major foreign markets and primary and regional markets in the United States.

320. Interior Design Material and Workroom Practices
Fall, Spring. 4(3-2) HED 222 or approval of department. Junior Interior Design majors.
The material used to create design in near-environment space and the workroom practices used to accomplish an installation after it has been designed.

322. Interior Lighting Design
Fall, Spring. 3(2-2) HED 213, approval of department.
The basic principles and practices of interior design lighting, light control, distribution, quality and quantity of light as it affects our near environment.

324. Interior Perspective and Media
Fall, Winter. 5(0-10) HED 222 or approval of department. Junior Interior Design majors.
The development of methods for design communication through manipulation of three-dimensional drawings in many media.

326. Interior Design Problems
Winter, Spring. 3(0-6) May reenroll for a maximum of 9 credits. HED 324 or approval of department. Junior Interior Design majors.
Research and analysis of design systems through a broad choice of projects with a strong emphasis on independent development.

331. History of Interior Design: Ancient to Rococo
(330.) Fall. 3(3-0) Approval of department.
Historical development of furniture, textiles, and the other decorative arts in relation to interior architecture from ancient times to Rococo.

332. Human Needs in Housing
Fall, Winter, Spring. 3(3-0)
Near environment studied as a determinant of individual and family development. Content and discussions focus on interpreting human-environmental relations for the plan and design of housing.

353. Design Illustration
Fall, Spring. 3(0-6) HED 143; HED 222 or HED 254; or approval of department.
Development and display of design ideas through visual means. Exercises intended to stimulate design perception and creativity in design illustration. Survey of philosophies as related to design innovation.

355. Design Analysis: Flat Pattern
Fall. 3(2-2) HED 252 or approval of department.
Garment design achieved by flat pattern methods. Problems include fitting a masterpattern, designing from a block, pattern cutting and garment construction.