

**811 Plant Developmental Genetics**  
Fall. 3(2-2) Interdepartmental with Plant Biology. RB: (ZOL 341 and CSS 350) and (PLB 415 and ZOL 320)

Genetic mechanisms controlling plant development. Model systems and internal, nonenvironmental factors. Methods for the study of plant development. The plant genome. Genetics underlying developmental diversity in higher plants.

**816 Environmental Design Theory**  
Fall. 3(3-0) Interdepartmental with Landscape Architecture; Park, Recreation and Tourism Resources; Human Environment and Design. Administered by Department of Geography. RB: Undergraduate design degree recommended.

Differences between normative theories, scientific theories, models, and constructs. Exploration of normative theories related to thesis or practicum.

**817 Environmental Design Studio**  
Spring. 3(0-6) Interdepartmental with Landscape Architecture; Park, Recreation and Tourism Resources; Human Environment and Design. Administered by Department of Geography. P:M: (LA 816 and LA 883) RB: Undergraduate design degree.

Development of a student-selected environmental design project in a collaborative setting.

**819 Advanced Plant Breeding**  
Fall. 3(3-0) Interdepartmental with Crop and Soil Sciences; Forestry. RB: (CSS 450 and STT 422)

Genetic expectations resulting from breeding strategies with cross- and self-pollinated crop plants. Germplasm collections, mapping populations, and modifications of reproductive biology useful for crop improvement.

**820 Plant Reproductive Biology and Polyploidy**  
Spring. 1 credit. Interdepartmental with Crop and Soil Sciences; Forestry; Plant Pathology; Plant Biology. RB: Introductory Genetics and Plant Biology

Genetic processes underlying variations in plant reproductive biology and polyploidy and the utilization of these characteristics in plant breeding.

**821 Crop Evolution**  
Spring of odd years. 1 credit. Interdepartmental with Crop and Soil Sciences; Forestry; Plant Pathology; Plant Biology. RB: Introductory Genetics and Plant Biology

Cultural and biological aspects of the evolution of domestic plants.

**822 Historical Geography of Crop Plants**  
Spring of odd years. 1 credit. Interdepartmental with Crop and Soil Sciences; Forestry; Plant Pathology; Plant Biology. RB: Introductory Genetics and Plant Biology

Development and spread of the major crop species.

**827 Techniques in Cytogenetics**  
Fall of odd years. 1(0-3) Interdepartmental with Crop and Soil Sciences; Forestry. Administered by Department of Crop and Soil Sciences.

Preparation of chromosomes from commercially important plants for cytogenetic analysis.

**853 Plant Mineral Nutrition**  
Fall of odd years. 3(3-0) Interdepartmental with Crop and Soil Sciences. Administered by Department of Crop and Soil Sciences. RB: (BOT 301)

Inorganic ion transport in plant cells and tissues. Physiological responses and adaptation to problem soils. Genetic diversity in nutrient uptake and use by plants. Physiological roles of elemental nutrients in crop growth.

**863 Environmental Plant Physiology**  
Spring of odd years. 3(3-0) Interdepartmental with Plant Biology. Administered by Department of Plant Biology. RB: (PLB 301 or PLB 414 or PLB 415) SA: BOT 863

Interaction of plant and environment. Photobiology, thermophysiology, and plant-water relations.

**870 Techniques of Analyzing Unbalanced Research Data**

Spring. 4(4-0) Interdepartmental with Animal Science; Crop and Soil Sciences; Forestry; Fisheries and Wildlife. Administered by Department of Animal Science. RB: (STT 464) R: Open only to graduate students in the College of Agriculture and Natural Resources. SA: ANS 943 Not open to students with credit in ANS 943.

Linear model techniques to analyze biological research data characterized by missing and unequal number of observations in classes. Simultaneous consideration of multiple factors. Prediction of breeding values and estimation of population parameters from variance and covariance components.

**883 Environmental Design Seminar**  
Fall. 3(3-0) Interdepartmental with Landscape Architecture; Park, Recreation and Tourism Resources; Human Environment and Design. Administered by Department of Geography. RB: Undergraduate design degree.

Examination of the breadth of environmental design projects. Literature review of focused projects. Development of practicum or thesis proposals.

**890 Independent Study**  
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.  
Individual study of problems of special interest.

**891A Selected Topics in Horticulture**  
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in Horticulture. Approval of department.

Horticultural science topics of current interest and importance.

**891B Selected Topics in Plant Breeding and Genetics**  
Fall, Spring, Summer. 1 to 2 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Crop and Soil Sciences; Forestry. R: Open only to graduate students in Plant Breeding and Genetics or Genetics. Approval of department.

Selected topics in plant breeding.

**892 Plant Breeding and Genetics Seminar**  
Fall, Spring, Summer. 1(1-0) A student may earn a maximum of 8 credits in all enrollments for this course. Interdepartmental with Crop and Soil Sciences; Forestry.

Experience in review, organization, oral presentation, and analysis of research.

**894 Horticulture Seminar**  
Fall, Spring. 1(1-0) A student may earn a maximum of 4 credits in all enrollments for this course.

Experience in review, organization, oral presentation and analysis of research.

**898 Master's Research**  
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Approval of department.

Master's degree Plan B project.

**899 Master's Thesis Research**  
Fall, Spring, Summer. 1 to 10 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to graduate students in Horticulture. Master's thesis research.

**941 Quantitative Genetics in Plant Breeding**  
Spring of even years. 3(2-2) Interdepartmental with Crop and Soil Sciences; Forestry. Administered by Department of Crop and Soil Sciences. RB: (CSS 819 and STT 464)

Theoretical and genetic basis of statistical analysis of quantitative traits using genetic markers. Computational tools for the study of quantitative traits.

**999 Doctoral Dissertation Research**  
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 99 credits in all enrollments for this course. R: Open only to Ph.D. students in Horticulture. Doctoral dissertation research.

## HOSPITALITY HB BUSINESS

### School of Hospitality Business The Eli Broad College of Business and The Eli Broad Graduate School of Management

**100 Introduction to Hospitality Business**  
Fall, Spring. 2(2-0) R: Open only to freshmen or sophomores. Open to juniors or seniors in the Hospitality Business major. SA: HRI 200, HB 200

Sectors, segments and disciplines of the hospitality and tourism industries. Impact of travel and tourism. Hospitality trends. Overview of accounting, marketing, and sales.

## Hospitality Business—HB

- 105 Service Management Principles**  
Fall, Spring. 2(2-0) RB: (HB 100) R: Open to freshmen or sophomores. Open only to juniors or seniors in the Hospitality Business major.  
Concept of service organizations. Key issues in delivering and managing services. Service intangibility. Needs, expectations, habituation and customer satisfaction. Prepurchase and postpurchase behaviors.
- 201 Hospitality Business Professional Development I**  
Fall, Spring. 1(1-0) P: (HB 100) RB: Completion of Level I internship. R: Open only to Hospitality Business majors.  
Self-assessment of personal and professional interests, values, and skills. Definition of professional goals. Career planning.
- 210 Introduction to the Casino Industry**  
Fall of odd years. 3(3-0)  
Social issues of gaming, casino games of chance, management controls and marketing plans.
- 237 Management of Lodging Systems**  
Fall, Spring. 3(3-0) P: (HB 100) R: Not open to seniors. SA: HRI 237  
Interrelated systems in lodging operations. Front desk, reservations, housekeeping, private branch exchange (PBX) telecommunications, guest services and security. Segmentation of lodging products and associated management challenges.
- 265 Food Management: Safety and Nutrition**  
Spring. 3(3-0) P: (HB 100) R: Not open to seniors. SA: HRI 265  
Standards of microbiology, sanitation, nutrition, and other quality issues in food management. Chemical, health, and workplace standards. Management of product quality and costs.
- 267 Management of Food and Beverage Systems**  
Fall, Spring. 3(3-0) P: (HB 100) R: Not open to seniors.  
Principles of menu planning, designing and pricing. Control of food and beverage products during purchasing, receiving, storing and issuing. Labor control principles. Control of revenue during sale. Food and beverage segment overview.
- 293 Cooperative Education for Business Students**  
Fall, Spring. 1(1-0) A student may earn a maximum of 3 credits in all enrollments for this course. Interdepartmental with Marketing and Supply Chain Management; Accounting; Economics; Finance; Management. Administered by Department of Marketing and Supply Chain Management. R: By permission of the Department only.  
Integration of pre-professional educational employment experiences in industry and government with knowledge and processes taught in the student's academic program. Educational employment assignment approved by the Department of Marketing and Supply Chain Management.
- 302 Hospitality Managerial Accounting**  
Fall, Spring. 3(3-0) P: (ACC 201 and CSE 101 or concurrently and STT 201) and (HB 100) R: Open only to juniors or seniors in the Hospitality Business major. SA: HRI 302  
Principles of managerial accounting applied to hospitality enterprises. Topics include financial statements, forecasting methods, internal control, and ethics.
- 307 Hospitality Human Resources**  
Fall, Spring, Summer. 3(3-0) P: (HB 100 and HB 105 and HB 201) RB: Completion of Level I internship. R: Open only to juniors or seniors in The School of Hospitality Business.  
Human resource management and interpersonal skills in the hospitality industry. Managing in a culturally diverse workplace.
- 311 Hospitality Finance**  
Fall, Spring, Summer. 3(3-0) P: (HB 302) R: Open only to Hospitality Business majors. Not open to students with credit in FI 201 or FI 311 or FI 320.  
Optimal management of a hospitality firm's assets and financing requirements. Analysis of financial statements, financial markets, risk, valuation, short-term and long-term financing and investment.
- 320 Casino Operations and Management**  
Fall of even years. 3(3-0) P: (HB 210) R: Open only to students in the Hospitality Business major.  
Practices and problems associated with casino management. Staffing, security, protection of table games, and control.
- 321 Club Operations and Management**  
Spring of odd years. 3(3-0) P: (HB 100 and HB 105) R: Open only to students in the Hospitality Business major. SA: HB 211  
Club operations and management. City, country, yacht, and athletic clubs. Field trips required.
- 337 Hospitality Information Systems**  
Fall, Spring. 3(3-0) P: (HB 237 and CSE 101) R: Open only to juniors or seniors in the Hospitality Business major.  
Technology for gathering, analyzing, storing and communicating information within the hospitality industry.
- 345 Quantity Food Production Systems**  
Fall, Spring. 3(1-4) P: (HB 265) R: Open only to juniors or seniors in the Hospitality Business major. SA: HRI 345  
Organization of food and beverage operations. Product knowledge, especially purchasing, storing, preparing and production in food service operations. Menu development and recipe management.
- 349 Facilities Maintenance and Systems**  
Fall. 3(3-0) P: (HB 237)  
Managing the physical plant of a hospitality business. Key systems, safety, preventive maintenance, energy conservation.
- 370 Hospitality Business v-Commerce**  
Spring. 3(3-0) P: (HB 337) R: Not open to freshmen.  
Technology and marketing considerations for automatic merchandising in the hospitality industry.
- 375 Hospitality Marketing**  
Fall, Spring. 3(3-0) P: (HB 337) R: Open only to juniors or seniors in The School of Hospitality Business. Not open to students with credit in MSC 300 or MSC 327.  
Marketing of hospitality products and services in an increasingly competitive, global, and culturally diverse market.
- 376 Hospitality Sales Process**  
Fall. 3(3-0) P: (HB 375) R: Open only to juniors or seniors in The School of Hospitality Business. Not open to students with credit in MSC 313.  
Management of the sales process in the hospitality industry.
- 380 Meeting and Event Planning and Management**  
Spring. 3(3-0) P: (HB 375 or concurrently) R: Open only to juniors or seniors in the Hospitality Business major.  
Planning, developing, budgeting, promoting, delivering, and evaluating meetings or special events in the hospitality industry.
- 382 Hospitality Business Real Estate Development**  
Fall of even years. 3(3-0) P: (HB 311) R: Open only to juniors or seniors in the Hospitality Business major.  
Process of planning and developing a commercial real estate project: conceptualization and planning, feasibility, commitment, design layout and construction, and management and operation.
- 401 Hospitality Business Professional Development II**  
Fall, Spring. 1(1-0) P: (HB 307) RB: Completion of Level II internship. R: Open only to Hospitality Business majors.  
Defining hospitality career goals and designing and implementing a strategic job search and professional development plan.
- 405 Advanced Management of Food and Beverage Systems**  
Fall. 3(3-0) P: (HB 267 and HB 345) R: Open only to juniors or seniors in the Hospitality Business major.  
Design of food and beverage control systems, emphasis on product purchasing (policies, suppliers, selection and evaluation, determination of quality and quantity, ethics and use of technology), inventory management and issuing systems, revenue control procedures and equipment.
- 411 Hospitality Beverages**  
Spring of odd years. 3(3-0) R: Open only to seniors or graduate students in the Hospitality Business major.  
Evaluation and selection of hospitality beverages. Geographical origins of beverages, beverage production, quality assessment, matching beverages with food, health and social considerations.
- 415 Managing Quality in Hospitality Businesses**  
Fall. 3(3-0) P: (HB 307 and HB 375)  
Quality management and leadership in hospitality businesses. Quality planning and improvement, assessment, internal and external customer surveys and feedback, costs of quality, strategic quality planning.
- 447 Hospitality Business Law**  
Fall, Spring. 3(3-0) P: (HB 265 and HB 307) R: Open only to seniors or graduate students in The School of Hospitality Business. SA: GBL 447  
Legal aspects of hospitality industry, including structure of the U.S. legal system, contracts, torts, discrimination, property and product liability. Administrative law and government regulation of the industry.

**460 International Lodging Development and Management**  
 Fall of odd years. 3(3-0) P: (HB 237 and HB 311) R: Open only to juniors or seniors in the Hospitality Business major.

Global perspective of the lodging industry. International lodging companies, risks and barriers of developing and managing lodging properties internationally, financing international hotels, strategic alliances between international partners, differences in managing lodging properties in a global environment.

**473 Hospitality Industry Research**  
 Fall of even years. 3(3-0) P: (HB 337) R: Open only to juniors or seniors in the Hospitality Business major.

Strategies and techniques for obtaining, analyzing, evaluating, and reporting relevant research data.

**475 Applied Hospitality Marketing in Food Service**  
 Spring. 3(3-0) P: (HB 267 and HB 375) R: Open only to seniors in the Hospitality Business major. Not open to students with credit in HB 476.

Application of marketing principles in the food service industry. Identifying, influencing and satisfying demand for food products and services.

**476 Applied Hospitality Marketing in Lodging**  
 Fall. 3(3-0) P: (HB 237 and HB 375) R: Open only to seniors in the Hospitality Business major. Not open to students with credit in HB 475.

Application of marketing principles in the lodging industry. Identifying, influencing and satisfying demand for lodging products and services.

**482 Advanced Hospitality Finance**  
 Spring. 3(3-0) P: (HB 311) R: Open only to juniors or seniors in the Hospitality Business major. SA: HRI 482

Cash flow determination and management. Strategies for financing hospitality ventures and expansion. Determining financial viability of proposed and existing operations.

**485 Hospitality Foodservice Operations**  
 Fall, Spring, Summer. 3(1-4) P: (HB 345) R: Open only to seniors in The School of Hospitality Business. SA: HRI 485

Beverage management and dining room service. Guest relations and current management topics. Emphasis on foodservice team projects.

**489 Hospitality Business Strategy (W)**  
 Fall, Spring. 3(3-0) P: (HB 307 and HB 311 and HB 375) RB: Completion of Level I and Level II internship. R: Open only to seniors in The School of Hospitality Business.

Management problems and issues in the hospitality industry. Focus on decision-making models. Case study analysis, discussion and report writing.

**490 Independent Study**  
 Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to juniors or seniors in The School of Hospitality Business. Approval of School. SA: HRI 490

Supervised research in hospitality management and operations.

**491 Current Topics in Hospitality Business**  
 Fall, Spring. 3(3-0) R: Open only to seniors in The School of Hospitality Business. SA: HRI 491

Emerging topics or issues confronting the hospitality service industry.

**801 Seminar in Hospitality Business**  
 Fall, Spring. 3(3-0)  
 Issues of critical importance to hospitality business.

**802 Hospitality Operations**  
 Fall, Spring. 3(3-0)  
 Hospitality business operational issues.

**807 Workforce Management in the Hospitality Industry**  
 Fall. 3(3-0) R: Open only to graduate students in Business. SA: HRI 807

Identifying and solving hospitality workforce problems. Topics include leadership styles, interpersonal and organization communication.

**837 Hospitality Computer Information Systems**  
 Spring. 3(3-0) R: Open only to graduate students in College of Business. SA: HRI 837

Overview of computer systems and networks designed for the hospitality industry.

**875 Marketing in the Hospitality Industry**  
 Spring. 3(3-0) R: Not open to first-year graduate students. Open only to MBA students. SA: HRI 875

A framework for understanding hospitality marketing in a global business environment. Emphasis on industry responses to changing consumer trends, and applying marketing principles to case studies.

**882 Financial Management in the Hospitality Industry**  
 Spring. 3(3-0) SA: HRI 882

Interpretation and analysis of financial statements. Budget preparation and analysis. Leasing, franchising, and management contracts.

**885 Seminar in Food and Beverage Systems Management**  
 Fall. 3(3-0)

Management principles and practices in quality food and beverage operations. Product, sales, income, and human resource strategies.

**889 Hospitality Industry Field Study**  
 Fall, Spring, Summer. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. RB: 12 credits graduate course work R: Open only to graduate students in the College of Business.

Research on a current issue, problem or opportunity in a segment of the hospitality industry. Industry relationships and networking. Faculty supervision in a field setting.

**890 Independent Study**  
 Fall, Spring. 1 to 3 credits. A student may earn a maximum of 3 credits in all enrollments for this course. R: Open only to graduate students in the College of Business. Approval of school. SA: HRI 890  
 Faculty-supervised independent study.

## HUMAN ECOLOGY HEC

### College of Human Ecology

**101 Applications in Human Ecology**  
 Fall. 2(2-0) R: Open only to freshmen.  
 Historical and philosophical foundations of human ecology. Exploration of the university as a human ecological system and the ways in which students adapt to and shape their first-year experience.

**290 Independent Study**  
 Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to students in the College of Human Ecology.  
 Individual study of interdisciplinary topics related to the human ecology perspective under the guidance of a faculty member.

**497 Human Ecology Topics**  
 Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. RB: Professional experience in the topic area.  
 Application of human ecological principles to current issues affecting children, youth, and families in their communities.

## HUMAN ENVIRONMENT AND DESIGN HED

### Department of Human Environment and Design College of Human Ecology

**121 Apparel I: Two-Dimensional Design**  
 Fall. 3(1-4) P: (CSE 101 or concurrently) R: Open only to students in Apparel and Textile Design or approval of department.  
 Design fundamentals and creative problem solving in apparel design. Visual communication of design ideas through apparel rendering and computer graphics.

**140 Design for Living**  
 Fall, Spring, Summer. 3(3-0)  
 Interior design from the human ecological perspective. The reciprocal impact of the designed environment on human behavior, design terminology, and the design process.

**142 Design Theory Studio**  
 Fall, Spring, Summer. 3(0-6) P: (HED 140 or concurrently) R: Open only to students in the Interior Design major.  
 Design elements and principles in creative problem solving.

**150 Interior Design Drafting**  
 Fall, Spring, Summer. 3(1-4) R: Open only to students in the Interior Design major.  
 Drafting and two-dimensional drawing for interior design.