

**479. Dietetics: Theory-Practice Interrelationships II**  
Spring. 3(2-3) HNF 379, HNF 420 or approval of department.

Continuation of HNF 379. Development of skills in nutritional and employee counseling, resource management and professional behavior using simulated and real life situations.

**480. Practice of Dietetics**  
Fall, Winter, Spring, Summer. 12(2-30) May reenroll for a maximum of 24 credits. HNF 303, HNF 470.

Application and integration of nutritional and managerial concepts related to the practice of dietetics.  
Approved through Spring 1983.

**490A. Professional Literature II: Foods**  
Fall. 2(2-0) HNF 290, HNF 300 or HNF 403 or approval of department.

Selected topics in foods research. Emphasis on experimental data and basic scientific principles related to food quality, nutritive stability and food safety.

**490B. Professional Literature II: Nutrition**

Spring. Summer of even-numbered years. 2(2-0) HNF 290, HNF 462 or approval of department.

Emphasis on experimental data and scientific principles related to basic nutrition research. Focus on current developments in nutrient requirements, metabolism and interactions

**490C. Professional Literature II: Clinical Nutrition**

Spring. 2(2-0) HNF 290, HNF 470 or concurrently or approval of department.

Selected topics in clinical nutrition research. Emphasis on human investigative data and scientific principles related to nutritional care of patients/clients including pathophysiologic correlations, nutritional assessment, diet planning, nutrition counseling.

**490D. Professional Literature II: Food Service Management**

Spring, Summer. 2(2-0) HNF 290, HNF 420 or concurrently or approval of department.

Examination of trends, problems and research in food service systems operation. Focus on current issues and developments relating to materials handling, manpower needs, operational accountability and public responsibility.

**490E. Professional Literature II: Foods and Nutrition Information**

Spring. Summer of odd-numbered years. 2(2-0) HNF 290, HNF 411 or HNF 462 or approval of department.

Selected topics in foods and nutrition information. Emphasis on research related to method and effectiveness of nutrition education.

**495. Independent Study**

Fall, Winter, Spring, Summer. 1 to 3 credits. May reenroll for a maximum of 9 credits. Seniors; approval of department.

Individual study of selected topics in foods, nutrition and food service management under staff guidance.

**498. Field Study**

Fall, Winter, Spring, Summer. 3 to 12 credits. May reenroll for a maximum of 12 credits. Approval of department.

Planned program of research, observation, study or work in selected organizations under staff guidance.

**800. Seminar in Foods and Nutrition**  
Fall, Winter, Spring. 1(1-0) HNF 403 or HNF 463.

**802. Seminar in Food Service Management**

Spring. 2 to 4 credits. May reenroll for a maximum of 4 credits. Approval of department.

**803. Problems in Food Service Management**

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**805. Experimental Foods III**  
Spring. 4(1-9) HNF 404 or approval of department.

Planning, executing, and reporting individual research project. Data collection, evaluation and interpretation to demonstrate understanding of research techniques and attitudes, and an awareness of significant problems in the field.

**813A. Special Studies in Nutrition**  
Fall, Winter, Spring, Summer. Variable credit. HNF 461.

**813B. Special Studies in Experimental Foods**

Fall, Winter, Spring, Summer of odd-numbered years. Variable credit. HNF 404; BCH 200 or BCH 451 and BCH 804.

**813C. Special Studies in Food Service Management**

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

Special studies in facility management, manpower coordination and tools and methods of operational control.

**816. Applied Human Nutrition**  
Spring. 3(3-0) HNF 462.

**840. Topics in Nutrition**  
Fall, Winter, Spring, Summer. 2 to 3 credits. HNF 462, PSL 432, BCH 401.

Advanced studies in nutrition: assessment and surveillance, community, clinical, growth and development, behavior, infectious disease and environment, oral health, obesity, aging, diet.

**841. Nutrition and Obesity**

Winter of even-numbered years. 2(2-0) One undergraduate course in nutrition, biochemistry or physiology.

Assessment, energy metabolism, and risk factors associated with obesity. Significance of nutrition and other factors for weight control and reduction.

**899. Master's Thesis Research**

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

**921. Pathology of Nutritional and Metabolic Diseases**

Spring of odd-numbered years. 4(3-2) Approval of department; PTH 404 or ANT 420. ANS 525, BCH 452, HNF 462 recommended. Interdepartmental with and administered by the Department of Large Animal Clinical Sciences.

Development, physiopathology and morphologic pathology of nutritional and metabolic diseases including carbohydrate, protein, fatty acid, vitamin and mineral deficiencies, their experimental induction and their medical or economic significance.

**926. Comparative Nutrition-Lipids and Carbohydrates**

Winter of odd-numbered years. 4(4-0) BCH 452 and a previous course on principles of nutrition. Interdepartmental with Animal Husbandry.

Regulatory aspects of carbohydrate and lipid metabolism as influenced by nutrition in mammals. Emphasis on normal and abnormal physiological states such as obesity, ketosis and diabetes.

**927. Comparative Nutrition-Protein Metabolism and Developmental Biology**

Winter of even-numbered years. 4(4-0) BCH 452, PSL 802 or concurrently. Interdepartmental with Animal Husbandry.

Protein quality assessment, protein status, protein caloric malnutrition, amino acid metabolism, protein turnover, digestion and absorption, hormonal control of protein metabolism, developmental aspects of protein metabolism and growth.

**928. Comparative Nutrition-Minerals**

Spring of even-numbered years. 3 credits. BCH 452, PSL 802. Interdepartmental with and administered by Animal Husbandry.

Forms and location in body, metabolic roles, deficiency and toxicity signs, interrelationships, requirements and biological availability of sources.

**929. Comparative Nutrition-Vitamins**

Spring of odd-numbered years. 3(3-0) BCH 452 and a previous course on principles of nutrition. Interdepartmental with and administered by Animal Husbandry.

Chemical and physical properties, standards of activity, occurrence, metabolic roles, anti-vitamins, deficiency and toxicity signs, requirements and factors affecting requirements.

**999. Doctoral Dissertation Research**

Fall, Winter, Spring, Summer. Variable credit. Approval of department.

## **FOOD SYSTEMS ECONOMICS AND MANAGEMENT**

See Agricultural Economics.

## **FOREIGN LANGUAGES**

See Linguistics and Germanic, Slavic, Asian and African Languages, and Romance and Classical Languages.

## **FORESTRY FOR**

### **College of Agriculture and Natural Resources**

In 305, 306, 402 and 430, field trips are scheduled for several consecutive days away from the campus for integrated field experience, primarily in the second half of spring term of the junior year, so that these courses must be taken concurrently. This precludes enrollment in other courses during that term. The approximate cost of these field trips is \$200.

**Descriptions – Forestry  
of  
Courses**

- 1DC. Introduction to Resource Ecology**  
For course description, see *Interdisciplinary Courses*.
- 202. Introduction to Forestry**  
Fall, Spring. 3(3-0)  
Forestry in its broadest sense, including: historic development, forest growth, protection and management, products, national and world economy and policy. Emphasis on multiple use concepts. One-day field trip required.
- 204. Forest Vegetation**  
Fall, Spring. 5(3-4)  
Nomenclature, classification, and identification of important trees, shrubs, and herbaceous plants of forest and field.
- 220. Plants and Their Environment**  
Winter. 3(3-0) *Interdepartmental with Agriculture and Natural Resources.*  
Relationships between plants and fundamental climatic, edaphic, and biotic factors; structure and function of different ecosystems in relation to environmental factors.
- 301. Quantitative Methods for Natural Resources**  
Winter. 4(3-2) *MTH 109 or MTH 111.*  
Collection and analysis of information pertaining to natural resources. Survey design, field procedures, equipment, and analytical techniques.
- 304. Forest Ecology**  
Fall. 4(3-3) *FOR 204; BOT 205; CSS 210 or concurrently.*  
The forest is viewed as a biological community. Forest site relationships are quantified by examining the existing physical environment and relating it to the forest species occupying that community.
- 305. Silviculture**  
Spring. 4(3-3) *FOR 204, FOR 304, FOR 402, FOR 424, FOR 425, FOR 429 concurrently.*  
Natural and artificial forest reproduction methods; intermediate stand treatments; non-timber aspects of silviculture; field studies of silvicultural methods. Extended field trips required.
- 306. Forest Fire Protection and Use**  
Winter of odd-numbered years. 3(2-3) *Juniors or approval of department.*  
Causes and effects of forest fires. Combustion, fire behavior and fire weather. Prevention and control planning and techniques. Fire in forest land management.
- 309. Wood Technology**  
Fall. 4(3-3)  
Structure of wood. Mechanical and physical properties of wood. Wood anatomy and relation to growth.
- 402. Forest Inventory**  
Spring. 4(2-4) *FOR 301, FOR 305, FOR 424, FOR 425, FOR 429 concurrently.*  
Field and office techniques of forest inventory, with primary emphasis on timber resources. Extended field trips required.
- 409. Forest Hydrology**  
Winter. 3(3-0) *FOR 424, Seniors; or approval of department.*  
Hydrologic cycle, with emphasis on soil, water and ground water regimes; instrumentation and measurement of the various components. Effects of forest management on watersheds and wood yields.
- 410. Forest Tree Improvement**  
Fall. 3(2-2)  
Distribution of genetic variation in natural tree populations. Introduction, selection, progeny testing, species hybridization, and polyploidy to obtain superior tree populations.
- 411. Tree Physiology**  
Winter. 3(3-0) *BOT 301.*  
The fundamental principles of plant physiology with particular reference to the growth and development of woody plants, and consideration of the influence of genetic and environmental factors on physiological processes in trees.
- 424. Forest Soils**  
Spring. 3(2-3) *CSS 210; Juniors or approval of department. Forestry majors: FOR 305, FOR 402, FOR 425, FOR 429 concurrently. Interdepartmental with the Department of Crop and Soil Sciences.*  
Interrelationships of forest site and the growth of trees. Properties, classification, inventory, productivity and management of forest soils. Effects of silvicultural and forest management practices on the soil.
- 425. Forest Soils Laboratory**  
Spring. 1(0-3) *CSS 210; FOR 305, FOR 402, FOR 424, FOR 429 concurrently. Interdepartmental with the Department of Crop and Soil Sciences.*  
Exercises and field trips relating to properties, classification, inventory, productivity and management of forest soils. Extended field trips required.
- 428. Seminar**  
Fall. 1(1-0) *Seniors.*  
Current forestry topics.
- 429. Timber Harvesting**  
Spring. 3(2-3) *FOR 309, FOR 305, FOR 402, FOR 424, FOR 425 concurrently.*  
Felling, bucking and transport of trees to mill site. Capabilities and limitations of mechanical devices, vehicles, and logging systems related to timber size and terrain. Extended field trips required.
- 430. Industrial Timber Utilization Processes**  
Winter. 3(2-2) *FOR 429.*  
Mechanics and technologies of industrial wood conversion processes, including grading logs and lumber, manufacture of furniture, plywood, particleboard, fiberboard, and paper. Field trips required.
- 431. Finishing, Preservation and Drying of Wood**  
Winter. 3(3-0) *FOR 309.*  
Properties, selection, application of decorative and protective coatings, wood preservatives and fire retardants. Air and kiln drying of lumber.
- 435. Law and Resources**  
Fall. 3(3-0) *RD 417 or BOA 440. Interdepartmental with and administered by the Department of Resource Development.*  
Legal theories, cases, statutes and constitutional considerations are applied to natural resource utilization. Private and public property interests in natural resources are illustrated through case studies of use conflicts.
- 446. Range Management**  
Winter of even-numbered years. 4(4-0) *FOR 220 or FOR 304 or approval of department.*  
The science of range management, with emphasis on range regions, range vegetation management, livestock management practices, range improvements and multiple use values of rangelands.
- 450. Natural Resource Administration**  
Fall. 4(4-0) *Seniors; not open to forestry majors. Interdepartmental with Agriculture and Natural Resources and the departments of Fisheries and Wildlife, Park and Recreation Resources, and Resource Development.*  
Concepts and methods of administering wild-land properties. The legal, economic and social environment. Benefit-cost analysis of management changes. Unit organization, personnel management and accounting. Presents a systems view of administration.
- 454. Forestry in International Development**  
Winter. 3(3-0)  
Assessment of the world's forest resources, forest products industrial development and trade, and restraints of developmental objectives on forestry goals. Issues, policy approaches, and prospects for individual countries.
- 455. Natural Resource Economics**  
Fall. 4(4-0) *Approval of department. Interdepartmental with Agriculture and Natural Resources and the departments of Fisheries and Wildlife, Park and Recreation Resources, and Resource Development.*  
Basic economic and political principles and techniques that govern the production and consumption of forest land products, including basic forest valuation procedures.
- 457. Public Forest Management**  
Winter. 3(2-2) *FOR 455.*  
Integrative planning for public forest ownerships, including multiple use aspects.
- 459. Private Forest Management**  
Spring. 3(2-2) *FOR 457; Seniors.*  
Forestry as a business. Timberland acquisition, timber management planning, harvest scheduling, the legal environment, accounting and taxation. Laboratory exercises based on an existing private forestry property.
- 460. Arboriculture**  
Fall. 3(2-2) *Approval of department.*  
Principles and techniques of species selection, establishment, and cultural practices used in the care and maintenance of shade and ornamental trees. Two-day field trip required.
- 461. Urban Forestry**  
Spring. 3(3-0) *FOR 460 or approval of department.*  
Principles of urban forest management: organizational, legal, economic, cultural and environmental. Inventories, utility forestry and commercial arboriculture. Field trips required.
- 465. Forest and Wood Science Problems**  
Fall, Winter, Spring, Summer. 1 to 5 credits. *Seniors with a 2.80 average, or approval of department.*  
Special problems course for students qualified for advanced study in some phase of forestry or wood science.

**491. Natural Resources and Modern Society**

*Spring. 3(3-0) Juniors. Interdepartmental with Agriculture and Natural Resources and the Department of Resource Development.*

A survey of the social and economic significance of natural resources in modern industrial and urban society. Current problems of natural resources management and use are examined in terms of the society in which they exist.

**804. Forest Ecology**

*Winter. 3(3-0) Approval of department.*

Theories, methods of analysis, and discussion of current investigations of energy, nutrients, and biomass dynamics in forest ecosystems.

**807. Special Problems**

*Fall, Winter, Spring, Summer. 2 to 5 credits. May reenroll for credit with a maximum of 10 credits. Approval of department.*

Advanced study in administration, biometrics, photogrammetry, dendrology, silviculture, management, economics, ecology, genetics, arboriculture, hydrology, soils, recreation, physiology, policy, entomology, products harvesting, wood preservation, timber mechanics, wood conversion, fire, range management, extension and pathology.

**809. Natural Resources Economics**

*Winter. 3(3-0) Approval of department. Interdepartmental with the Department of Resource Development.*

Applications of economic analysis to natural resource problems.

**828. Seminar**

*Fall. 1(1-0)*

Critical study and discussion of advanced forestry topics.

**830. Physiological Genetics**

*Winter. 3(3-0) Approval of department. Interdepartmental with the Department of Crop and Soil Sciences.*

Physiological bases for genetic variation in higher plants including adaptive physiology, quantitative genetics, growth correlations, biochemical genetics, hybrid physiology, and genealogy.

**835. Silviculture**

*Fall. 3(3-0) FOR 305 or approval of department.*

Biological basis of intensive forest management including seedling production, site evaluation and preparation, plantation establishment, intermediate stand treatments and natural reproduction methods. Field trip optional.

**840. Recreation Economics**

*Spring. 4(4-0) FOR 809 or approval of instructor. Interdepartmental with the departments of Park and Recreation Resources, and Resource Development. Administered by the Department of Park and Recreation Resources.*

Applications of economic analysis to recreation resource problems including measurement of demand and supply, valuation of recreation resources, determination of economic impact, economic decision making and policy considerations.

**845. Forest Policy**

*Fall. 3(3-0) Approval of department.*

The dynamics and process of forest policy making.

**850. Administering the Public Land Agency**

*Spring. 4(4-0) FOR 450 or approval of department.*

Case studies of administrative problems in land management agencies. Students are organized as teams and prepare team reports on specified aspects of each case.

**855. The Research Process in Natural Resources**

*Fall. 3(3-0) Approval of department. Interdepartmental with and administered by the Department of Resource Development.*

Research and decision processes as applied in natural resource investigations. Research organization and applications of research results. Oriented to management, social science, and policy studies. Preparation of project proposals.

**899. Master's Thesis Research**

*Fall, Winter, Spring, Summer. Variable credit. Approval of department.*

**909. Timber Economics**

*Fall of odd-numbered years. 3(3-0) FOR 457, FOR 809, EC 800, EC 801, EC 802.*

Economic theory relevant to study of timber production, regional and national timber supply, demand and price, the effect of institutional factors, and other topics by review of past research.

**910. Resource Economics Proseminar**

*Spring. 3(3-0) May reenroll for a maximum of 9 credits. Approval of department. Interdepartmental with the departments of Agricultural Economics and Resource Development.*

A seminar wherein advanced graduate students in the fields of resource economics participate with faculty in the joint conduct of a major research project in resource economics and policy.

**960. Simulation Models in Natural Resource Management**

*Winter of odd-numbered years. 3(3-0) RD 855 and knowledge of FORTRAN programming or approval of department. Interdepartmental with and administered by the Department of Resource Development.*

The role of simulation models in developing management strategies. Applications of computer simulation in natural resources. Modeling of decision systems in natural resources management.

**975. Least Squares Analysis and Linear Programming in Forestry Research**

*Fall of odd-numbered years. 4(4-0) MTH 112, STT 423, CPS 110 or CPS 120.*

Application of least squares analysis and linear programming to problems in forestry research. Include both linear and nonlinear least squares models. Case studies from several forestry disciplines.

**976. Multivariate Methods in Forestry Research**

*Winter of even-numbered years. 4(4-0) MTH 334, STT 423, CPS 120.*

Application of multivariate techniques such as principal components, canonical analysis, factor analysis, and clustering to problems in forestry research. Case studies drawn from several forestry disciplines.

**999. Doctoral Dissertation Research**

*Fall, Winter, Spring, Summer. Variable credit. Approval of department.*

**FRENCH**

See Romance and Classical Languages.

**GENERAL BUSINESS —  
BUSINESS LAW  
PROGRAMS** **GBL**

(Name change effective July 1, 1982. Formerly the Department of Business Law and Office Administration.)

**College of Business**

**341. Survey of Business Law**

*(BOA 341.) Fall, Winter, Spring. 4(4-0) Juniors. Not open to students with majors in the College of Business.*

Historical development of the law; courts, court procedures and civil remedies, torts, crimes; contracts, agency, sales, negotiable instruments, real and personal property, including bailments and liens. Textbook and lecture rather than case approach.

**400H. Honors Work**

*(BOA 400H.) Fall, Winter, Spring, Summer. 1 to 15 credits. Approval of department.*

Independent and informal study in law, office administration or business communications.

**440. Law and Society**

*(BOA 440.) Fall, Winter, Spring, Summer. 3(3-0) Seniors or approval of department.*

Legal reasoning and legal institutions., Court systems and court procedures. Relationships of citizens and business people to governmental agencies. Torts, crimes.

**441. Contracts and Sales**

*(BOA 441.) Fall, Winter, Spring, Summer. 3(3-0) GBL 440.*

Contracts, including concept of freedom of contract and limitations. Sales. Case study method.

**442. Agency, Partnerships and Corporations**

*(BOA 442.) Winter, Spring. 3(3-0) GBL*

441. The law dealing with agency and business organizations. Case study method.

**443. Negotiable Instruments, Secured Transactions, Property**

*(BOA 443.) Winter, Spring. 3(3-0) GBL*

441. The law of negotiable instruments, secured transactions, and property. Case study method.

**447. Hotel Law**

*(BOA 447.) Winter, Spring. 4(4-0) GBL*

440. Legal aspects of the hospitality industry.

**468. Field Studies**

*(BOA 468.) Fall, Winter, Spring, Summer. Variable credit. May reenroll for a maximum of 8 credits. Approval of department.*

Planned program of observation and work in selected business firms. Analysis and reports.