801 Chemistry of Food Lipids
Fall of odd years. 3(3-0) RB: (FSC 401 and BMB 461)
Composition and structure of lipids: physical and chemical properties in relation to their function in foods.

802 Food Proteins
Spring of even years. 3(3-0) RB: (BMB 461 and FSC 401)
Use of proteins and enzymes in the food industry. Functional properties of proteins and enzymes in food systems.

807 Advanced Food Toxicology
Fall of even years. 3(3-0) Interdepartmental with Animal Science; Human Nutrition and Foods. R: Approval of department.
Toxicology related to food safety. Metabolism of toxicants as influenced by food constituents, mutagenesis, and chemical carcinogenesis. Risk assessment.

831 Advanced Cereal Science
Fall of even years. 3(3-0) RB: (BMB 401 and FSC 331 and FSC 401) or approval of department.
Physico-chemical properties of major constituents in cereal grains. Relationship of constituent structures to functionality in the processing of cereal grains into food products, with emphasis on wheat.

840 Advanced Food Microbiology
Spring of odd years. 3(3-0) RB: (FSC 440)
Detection, characterization, identification, and enumeration of food-associated pathogens. Applications and regulation of food biotechnology.

842 Foodborne Diseases
Spring of odd years. 3(3-0) RB: (FSC 440 or FSC 840)
Epidemiology, isolation, characterization, clinical manifestations, pathogenicity, incidence and control of bacterial, parasitic and viral foodborne pathogens and associated toxins.

850 Analytical Techniques in Food Science
Summer of odd years. 2(1-2) R: Open only to graduate students in Food Science or Human Nutrition.
Theory and application of dynamic rheological testing, nucleic acid and protein analysis, and immunological techniques. Other new technologies related to food science.

860 Research in Food Processing Technology
Summer of even years. 2(1-2) R: Open only to graduate students in Food Science, Human Nutrition, Animal Science, and Horticulture.
Theory, application, and evaluation of food processing technology: ultrafiltration, food irradiation, and critical point extraction.

890 Special Problems in Food Science
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to graduate students in Food Science. Approval of department; application required.
Individual investigation of an area of food science.

891 Selected Topics in Food Science
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in Foods or Food Science or Human Nutrition.
Topics of current interest and importance in basic and applied areas of food science.

892 Food Science Seminar
Fall, Spring. 1(1-0) A student may earn a maximum of 4 credits in all enrollments for this course. R: Open only to graduate students in Food Science.
Critical review of literature. Organization and communication of scientific data in food science.

898 Master's Research
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 5 credits in all enrollments for this course. R: Open only to master's students in Food Science. Approval of department.
Directed research in support of Plan B master's degree requirements.

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 M.S. students in Food Science.
Master's thesis research.

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 Food Science.
Doctoral dissertation research.

FORENSIC SCIENCE FRS

School of Criminal Justice
College of Social Science

809 Issues in Forensic Science
Fall, Spring. 2 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course.
Forensic science research, practice and legal processes.

890 Independent Study
Fall, Spring. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
Individual research and writing under faculty supervision.

894 Practicum
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
Observation, study, and work in selected forensic science agencies.

899 Master's Thesis Research
Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
Planned research and writing directed by student's thesis committee.

FORESTRY FOR

Department of Forestry
College of Agriculture and Natural Resources

101 Michigan's Forests
Spring. 3(3-0)
Ecological, social and economic roles of Michigan's forests in historic and contemporary context. Geographic similarities and differences in forest resources.

201 Tenets of Forestry
Fall. 1(1-0) R: Open only to students in the Department of Forestry.
History, founding principles, and core concepts of forestry. Stewardship, conservation, professional ethics, and current forestry issues.

202 Introduction to Forestry
Fall, Spring. 3(3-0)
Historical development of forestry. Forest growth, protection, management, and products. Relationship of national and world economy and policy to forestry. Emphasis on multiple uses of forests.

204 Forest Vegetation
Fall. 4(3-3)
Nomenclature, classification, and identification of woody plants. Tree structure as it relates to growth and ecosystem dynamics.

206 Natural Resource Data Analysis
Spring. 3(2-2) RB: (CSE 101 or CSE 131) SA: FOR 207
Quantitative analysis of natural resource data. Modeling and display of biophysical and socio-economic data related to natural resource systems.

210 Fundamentals of Soil and Landscape Science
Fall, Spring. 3(2-3) Interdepartmental with Crop and Soil Sciences. Administered by Department of Crop and Soil Sciences. RB: (CEM 141)
Agricultural and natural resource ecosystems: soil, vegetation and ground water components. Energy, water and nutrient cycles. Soil classification and mapping. Land management and use issues.

211 Introduction to Gender and Environmental Issues
Spring. 3(3-0) Interdepartmental with Fisheries and Wildlife; Environmental Economics and Policy; Resource Development; Women's Studies. Administered by Department of Fisheries and Wildlife. R: Not open to freshmen. SA: PRM 211
The concept of gender. Overview of environment and habitat. Historical gender roles in environmental management. Gender-based theoretical perspectives. Case studies on developing and developed countries. Environmental management with emphasis on fisheries, wildlife and wetlands. Women environmental professionals.

220 Forests and the Global Environment
Fall. 3(3-0)
Relationships between forests, climatic and edaphic factors, and human influences upon forest resources. Deforestation, biodiversity, sustainable forest management and timber trade.

230 Communicating Forestry Issues
Spring. 3(2-2) R: Open only to students in the Department of Forestry.
Identification of targeted publics for forestry issues information strategies. Public presentations, press releases, public participation activities and organizational communication.

304 Wood Technology
Fall. 4(3-2) P:M: (CEM 141 and PHY 231) and (MTH 116 or MTH 104 or LBS 117) R: Not open to freshmen or sophomores.
Structure and identification of wood. Physical and mechanical characteristics. Major industrial timber utilization processes including manufacture of lumber, furniture, composites, and paper.

306 Forest Biometry
Spring. 4(3-2) P:M: (MTH 124 or MTH 132 or LBS 118) RB: (FOR 204 and FOR 206) R: Not open to freshmen or sophomores.
Describing location and area of forest resources. Quantification of site, stand, and tree characteristics. Sampling and inventory. Predicting growth and yield.

310 Foundations of Forest Conservation
Spring. 2(2-0) R: Not open to freshmen or sophomores.
Analysis of current forest conservation issues. Synthesis of classical forest conservation literature.

404 Forest and Agricultural Ecology
Fall. 3(3-0) Interdepartmental with Crop and Soil Sciences. P:M: (CSS 210) and (BOT 105 or BS 110) RB: (ZOL 355)
Ecological interactions crucial to the sustainable management of crop and forest ecosystems. Plant resources, competition, community development and dynamics, biodiversity, primary productivity, nutrient cycling, ecosystem structure and function, and impacts of global environmental change.

404L Forest and Agricultural Ecology Laboratory
Fall. 1(0-3) Interdepartmental with Crop and Soil Sciences. P:M: (CSS 210) and (BOT 105 or BS 110) and (FOR 404 or concurrently) RB: (ZOL 355)
Field studies and data analysis of ecological processes central to the sustainable management of forest and agricultural resources. Field exercises cover primary production, community structure, soil resources, biodiversity, succession, nutrient cycling, critiques of primary literature. Two weekend field trips required.

406 Silviculture
Spring. 4(3-3) P:M: (FOR 204 and FOR 404) R: Not open to freshmen or sophomores.
Ecophysiology of tree growth and reproduction. Stand structure, composition and growth. Intermediate stand treatments. Natural and artificial reproduction. Silvicultural techniques.

408 Forest Management
Spring. 4(3-2) P:M: (FOR 206 and FOR 406)
Management of forests for timber production in a multiple-use context. Yield projections, harvest scheduling, management prescriptions, project analysis and administration.

409 Forest Hydrology
Spring. 3(2-2) Interdepartmental with Crop and Soil Sciences; Resource Development. RB: (CSS 210 and MTH 116) or (MTH 104 or LBS 117) R: Not open to freshmen or sophomores.
Science and technology of the hydrologic cycle and water resources in forest, wildland, wetland, and rural watersheds.

410 Forest Conservation Thesis (W)
Fall, Spring. 3(3-0) P:M: Completion of Tier I writing requirement. RB: (FOR 310) R: Open only to seniors in the Department of Forestry.
Selecting, researching, and evaluating a forest conservation issue and communicating findings in a thesis and a departmental seminar.

419 Applications of Geographic Information Systems to Natural Resources Management
Spring. 4(2-4) Interdepartmental with Fisheries and Wildlife; Geography; Park, Recreation and Tourism Resources; Resource Development; Biosystems Engineering. Administered by Department of Fisheries and Wildlife. RB: (GEO 221)
The application of geographic information systems, remote sensing, and global positioning systems to integrated planning and management for fish, wildlife, and related resources.

420 Forestry Field Studies
Spring. 3 credits. P:M: (FOR 306 and FOR 406) R: Open only to juniors or seniors in the College of Agriculture and Natural Resources.
Ecological and silvicultural assessments and planning for multiple uses of forest lands. Forest management concepts including soils, biometry, harvesting and protection.

430 Law and Resources
Fall. 3(3-0) Interdepartmental with Resource Development; Environmental Economics and Policy. Administered by Department of Resource Development. RB: (RD 301) R: Open only to juniors or seniors or graduate students. SA: PRM 430
Legal principles applied to natural resource use. Sovereignty, property rights, land and water use, jurisdiction, public trust doctrine, fish and game law, mineral rights, and eminent domain. Case and statutory law analysis.

441 Plant Breeding and Biotechnology
Spring of even years. 4(3-2) Interdepartmental with Crop and Soil Sciences; Horticulture. Administered by Department of Crop and Soil Sciences. P:M: (CSS 350)
Plant improvement by genetic manipulation. Genetic variability in plants. Traditional and biotechnological means of creating and disseminating recombinant genotypes and cultivars.

450 Forestry in International Development
Fall. 3(3-0) Interdepartmental with Sociology. RB: (FOR 404) R: Open only to seniors or graduate students.
Biophysical, social and economic factors influencing design and implementation of farm, village and community level forestry and agroforestry projects.

451 Cellular and Molecular Principles and Techniques for Plant Sciences
Spring. 4(2-6) Interdepartmental with Crop and Soil Sciences; Horticulture. Administered by Department of Crop and Soil Sciences. RB: (CSS 350 or ZOL 341)
Principles, concepts, and techniques of agricultural plant biotechnology. Recombinant DNA technology, plant molecular biology, transformation, cell tissue, and organ culture in relation to plant improvement.

452 Watershed Concepts
Fall, Spring, Summer. 3(3-0) Interdepartmental with Resource Development; Biosystems Engineering; Crop and Soil Sciences; Fisheries and Wildlife. Administered by Department of Resource Development. P:M: (RD 324 and ZOL 355) RB: organic chemistry
Watershed hydrology and management. The hydrologic cycle, water quality, aquatic ecosystems and social systems. Laws and institutions for managing water resources.

460 Arboriculture
Fall. 3(2-2) P:M: (BOT 105) and (FOR 204 or HRT 211) R: Not open to freshmen or sophomores.
Tree selection and planting to fit climatic, space and edaphic conditions. Diagnosing tree abnormalities. Cultural practices used in the care and maintenance of shade and ornamental trees. Field trip required.

461 Urban Forestry
Spring. 3(3-0) P:M: (FOR 204 or HRT 211) R: Not open to freshmen or sophomores.
Trees in improving the urban environment. Principles of urban forest management: legal, economic, organizational, and cultural. Street tree planning and inventory systems. Utility forestry and commercial arboriculture. Field trips required.

464 Natural Resource Economics and Social Science (W)
Fall. 3(2-2) Interdepartmental with Fisheries and Wildlife; Park, Recreation and Tourism Resources; Resource Development. P:M: (EC 201 or EC 202) and completion of Tier I writing requirement. R: Not open to freshmen or sophomores.
Application of economic and social science principles and techniques to production and consumption of natural resources. Benefit-cost analysis. Regional impact analysis. Social impact assessment.

466 Natural Resources Planning and Policy
Spring. 3(2-2) Interdepartmental with Fisheries and Wildlife; Park, Recreation and Tourism Resources; Resource Development. R: Open only to seniors or graduate students in the Department of Forestry or Department of Fisheries and Wildlife or Department of Park, Recreation and Tourism Resources or Department of Resource Development.
Scientific, environmental, social, and institutional factors affecting planning and policy-making. Focus on ecosystem-based planning and policy issues through development of a multiple-use plan. Case studies.

478 Pest Management II: Biological Components of Management Systems (W)
Spring of even years. 3(2-3) Interdepartmental with Entomology; Crop and Soil Sciences; Fisheries and Wildlife; Horticulture. Administered by Department of Entomology. P:M: (ENT 404 or ENT 470 or PLP 405 or CSS 402 or FW 328) and completion of Tier I writing requirement.
Principles of host plant resistance and biological control and their relationship to the design of agroecosystems. Classification of insect biological control agents.

480 Woody Plant Physiology
Spring. 3(3-0) Interdepartmental with Horticulture. Administered by Department of Horticulture. P:M: (BOT 301) R: Not open to freshmen or sophomores.
Physiology of carbon utilization. Effects of water, temperature, nutrition, and light on apical, vegetative, and reproductive growth of woody plants.

486 Biotechnology in Agriculture: Applications and Ethical Issues
Fall of even years. 3(3-0) Interdepartmental with Horticulture; Crop and Soil Sciences; Philosophy. Administered by Department of Horticulture. P:M: (BOT 105 or BS 111) RB: (CSS 350 or ZOL 341) R: Not open to freshmen or sophomores.
Current and future roles of biotechnology in agriculture: scientific basis, applications. Environmental, social, and ethical concerns.

490 Independent Study in Forest and Wood Science
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to juniors or seniors. Approval of department.
Special problems course for students qualified for advanced study in some phase of forestry or wood science

802 Forest Science Research
Fall. 2 credits.
The philosophy, nature, and procedures of research in the forestry sciences.

804 Forest Ecology
Fall of odd years. 3(3-0) RB: (FOR 404)
Processes controlling population, community, ecosystem, landscape, and global ecology of forested systems. Extrapolation across scales, succession, spatial models of forest dynamics, causes and consequences of biodiversity, nutrient cycling, sustainability of managed ecosystems and human-accelerated environmental change.

819 Advanced Plant Breeding
Fall. 3(3-0) Interdepartmental with Horticulture; Crop and Soil Sciences. Administered by Department of Horticulture. 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 Horticulture; Crop and Soil Sciences; Plant Pathology; Plant Biology. Administered by Department of Horticulture. 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 Horticulture; Crop and Soil Sciences; Plant Pathology; Plant Biology. Administered by Department of Horticulture. 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 Horticulture; Crop and Soil Sciences; Plant Pathology; Plant Biology. Administered by Department of Horticulture. RB: Introductory Genetics and Plant Biology
Development and spread of the major crop species.

824 Forest Soils
Fall of odd years. 3(2-2)
Evaluation and inventory of forest soils and landscape ecosystems. Physical, water, biological, and chemical processes. Nutrient cycling, diagnosis, and fertilization. Variability, geography, and landscape ecology.

827 Techniques in Cytogenetics
Fall of odd years. 1(0-3) Interdepartmental with Crop and Soil Sciences; Horticulture. Administered by Department of Crop and Soil Sciences.
Preparation of chromosomes from commercially important plants for cytogenetic analysis.

829 The Economics of Environmental Resources
Fall. 3(3-0) Interdepartmental with Agricultural Economics; Economics; Park, Recreation and Tourism Resources; Resource Development. Administered by Department of Agricultural Economics.
Economic principles related to environmental conflicts and public policy alternatives. Applications to water quality, land use, conservation, development, and global environmental issues.

830 Wetlands Law and Policy
Spring of odd years. 3(3-0) Interdepartmental with Resource Development; Agricultural Economics; Fisheries and Wildlife. Administered by Department of Resource Development. RB: (RD 801) Prior exposure to environmental and natural resource economics, management, policy, or law. An ability to do legal and other library-based research.
Origin and development of wetlands law and policy. Wetland functions, mitigation, and banking. Legal, economic, political, and administrative perspectives. Cases, statutes and regulations.

832 Environmental and Natural Resource Law
Fall. 3(3-0) Interdepartmental with Resource Development; Agricultural Economics; Crop and Soil Sciences; Geography. Administered by Department of Resource Development. RB: (RD 430)
Origin and development of environmental law. Theories of power, jurisdiction, sovereignty, property interests, pollution, and other bases for legal controls of natural resources. Common law and constitutional limitations on governmental power.

835 Silviculture
Fall of even years. 3(3-0) R: Open only to graduate students in Forestry, Fisheries and Wildlife, Botany and Plant Pathology, and Resource Development.
Ecological, genetic, physiological, and societal impacts of silvicultural practices. Current problems in stand management and forest regeneration in temperate and tropical zones.

838 Land Use Law
Spring. 3(3-0) Interdepartmental with Resource Development; Agricultural Economics; Urban Planning. Administered by Department of Resource Development. RB: (RD 430) SA: RD 834
Public and private land use controls in the U.S. Civil rights, housing, energy problems, growth management, waste management, and land conservation. Cases, statutes and other regulations.

842 Population Genetics, Genealogy and Genomics
Fall. 3(3-0) Interdepartmental with Animal Science; Crop and Soil Sciences; Genetics; Fisheries and Wildlife; Horticulture. RB: Pre-calculus, basic genetics
Population genetic processes underlying patterns of molecular genetic variation. Genealogical approaches to the study of genomic diversity, phylogenetic reconstruction, and molecular ecology.

845 Forest Resource Policy
Spring of odd years. 3(3-0)
Models, processes and analytical methods. Interaction of markets, government, and citizens in policy issue development, formulation, implementation and evaluation.

852 Systems Modeling and Simulation
Fall of even years. 3(3-0) Interdepartmental with Fisheries and Wildlife; Biosystems Engineering; Resource Development. Administered by Department of Fisheries and Wildlife. RB: (STT 422 or STT 442 or STT 464 or GEO 463)
General systems theory and concepts. Modeling and simulation methods. Applications of systems approach and techniques to natural resource management, and to ecological and agricultural research.

853 Applied Systems Modeling and Simulation for Natural Resource Management
Spring of odd years. 3(2-2) Interdepartmental with Fisheries and Wildlife; Biosystems Engineering; Resource Development; Zoology. Administered by Department of Fisheries and Wildlife. RB: (FW 820 or BE 486 or ZOL 851) approval of department. R: Open only to seniors and graduate students
Mathematical models for evaluating resource management strategies. Stochastic and deterministic simulation for optimization. System control structures. Team modeling approach.

858 Gender, Justice and Environmental Change : Issues and Concepts
Spring of odd years. 3(3-0) Interdepartmental with Fisheries and Wildlife; Anthropology; Resource Development; Sociology. Administered by Department of Fisheries and Wildlife. RB: Background in social science, environmental science, or natural resources.
Issues and concepts related to gender, ecology, and environmental studies. Key debates and theoretical approaches to addressing environmental issues from a gender and social justice perspective. Gender and environment issues and processes from a global perspective.

859 Gender, Justice, and Environmental Change: Methods and Application
Spring of even years. 3(3-0) Interdepartmental with Anthropology; Fisheries and Wildlife; Resource Development; Sociology. Administered by Department of Anthropology. RB: Background in social science, environmental science, or natural resources.
Methods and case studies related to gender, ecology, and environmental studies. Methodological and fieldwork issues from a feminist perspective and in international/intercultural contexts. Qualitative and quantitative methods for integrating social and environmental data.

866 Economics of Renewable Resources
Spring of odd years. 3(2-2) Interdepartmental with Resource Development. RB: (AEC 829 or EC 803 or EC 805)
Applications of economic theory and analysis to renewable natural resources problems. Focus on renewable resource interactions, including multiple-use forestry and agroforestry.

870 Techniques of Analyzing Unbalanced Research Data
Spring. 4(4-0) Interdepartmental with Animal Science; Crop and Soil Sciences; Fisheries and Wildlife; Horticulture. 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.

890 Special Problems
Fall, Spring, Summer. 1 to 5 credits. A student may earn a maximum of 7 credits in all enrollments for this course. R: Approval of department; application required.
Advanced individual study in an area of forestry.

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 Horticulture; Crop and Soil Sciences. Administered by Department of Horticulture. 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 Horticulture; Crop and Soil Sciences. Administered by Department of Horticulture.
Experience in review, organization, oral presentation, and analysis of research.

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.
Master's thesis research.

923 Advanced Environmental and Resource Economics
Spring of even years. 3(3-0) Interdepartmental with Agricultural Economics; Economics; Park, Recreation and Tourism Resources; Resource Development. Administered by Department of Agricultural Economics. RB: (AEC 829 and EC 805)
Advanced economic theory of environmental management and policy. Treatment of externalities and market and non-market approaches to environmental improvement. Topics in conservation and sustainable economic growth. Applications to research and policy.

925 Environmental and Resource Economics Research
Spring of odd years. 3(3-0) Interdepartmental with Agricultural Economics; Resource Development; Park, Recreation and Tourism Resources; Economics. Administered by Department of Agricultural Economics. RB: (AEC 829 and EC 805) SA: AEC 991H
Topics such as contingent or non-market valuation, institutional analysis, pollution prevention, environmental quality and location, recreational demand modeling, and environmental risk management. Research process in environmental and resource economics.

941 Quantitative Genetics in Plant Breeding
Spring of even years. 2(1-2) Interdepartmental with Crop and Soil Sciences; Horticulture. 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.

976 Multivariate Methods in Agriculture and Natural Resources
Spring. 4(4-0) Interdepartmental with Animal Science; Fisheries and Wildlife. RB: (STT 422 and MTH 314) R: Open only to graduate students in the College of Agriculture and Natural Resources and in the Interdepartmental Graduate Specializations in Ecology and Evolutionary Biology.
Application of multivariate methods to research problems. Hotelling's T-test, profile analysis, discriminant analysis, canonical correlation, principal components, principal coordinates, correspondence analysis, and cluster analysis.

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 Forestry.
Doctoral dissertation research.

FRENCH FRN

Department of Romance and Classical Languages
College of Arts and Letters

101 Elementary French I
Fall, Spring, Summer. 4(4-1) Not open to students with credit in FRN 150.
Practice in using and understanding French to develop listening, speaking, reading, and writing skills. Pronunciation, grammar, vocabulary, and cultural topics.

102 Elementary French II
Fall, Spring. 4(4-1) P:M: (FRN 101) or designated score on French placement test. Not open to students with credit in FRN 150.
Further practice in using and understanding French to develop listening, speaking, reading, and writing skills. Pronunciation, grammar, vocabulary, and cultural topics.

150 Intensive Review of Elementary French
Fall, Spring. 5(5-1) P:M: Designated score on French placement test. RB: Two years of high school French or the equivalent. R: Open to students with high school credit in French. Not open to students with credit in FRN 101 or FRN 102.
Intensive review of elementary-level French for students who have had at least two years of French at the secondary level and who need to strengthen communication skills and knowledge of French language and culture.

201 Second-Year French I
Fall, Spring. 4(4-0) P:M: (FRN 102 or FRN 150) or designated score on French placement test.
Intermediate-level review and development of aural comprehension, speaking, reading, and writing skills. Topics in the cultures of the French-speaking world.

202 Second-Year French II
Fall, Spring. 4(4-0) P:M: (FRN 201)
Further review and development of aural comprehension, speaking, reading, and writing skills. Topics in the cultures of the French-speaking world.

250 Intensive Intermediate French
Fall, Spring. 6(5-2) P:M: (FRN 102 or FRN 150) or designated score on French placement test. RB: Study Abroad experience in a French-speaking country. R: Approval of department. Not open to students with credit in FRN 201 or FRN 202.
Intensive intermediate-level French. Development of oral comprehensive, speaking, reading and writing skills. Topics in the cultures of the French-speaking world. Strengthen communication skills, cross-cultural understanding, critical thinking.