

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 Foundations of Forestry
Fall. 2(2-0) 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.

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.

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.

305 Wood Composites
Spring. 2(2-0) P:M: (CEM 141 or CEM 151 or CEM 181H)
Physical and chemical principles of wood adhesion. Wood gluing. Wood adhesives and their properties. Manufacturing principles of wood-based composites. Composite design, process unit operations, property evaluation, and applications. New wood-based composite developments.

306 Forest Biometry
Spring. 4(3-2) P:M: (MTH 124 or MTH 132 or LBS 118) RB: (FOR 204) 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.

330 Social Applications in Forestry
Spring. 2(2-0) P:M: (ISS 210 or ISS 215 or ISS 220 or ISS 225)
Social factors underlying forest resource management issues. Public values, attitudes, knowledge, and behavior with respect to forests. Public participation, conflict resolution, and communicating forestry issues.

393 Forest Products Internship
Summer. 2 credits. RB: (FOR 304 or FOR 305) R: Open only to juniors in the Forestry major.
Pre-professional educational employment experience in forest products industry, government, or public agency.

400 Forest Harvest Operations
Spring. 2(1-2) P:M: (CSS210) and (FOR404) and (MTH124 or concurrently or MTH132 or concurrently) RB: (FOR 406 and FOR 420) R: Open only to juniors or seniors.
Forest harvest systems, components and equipment, non-timber products, and road and transport planning. Soil, slope, riparian and wetland limitations. Erosion prediction and control. Harvest contracting and best management practices.

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.

Forestry—FOR

- 408 Forest Resource Management**
Spring. 3(2-2) P:M: (FOR 406 and FOR 464) RB: Forestry major.
Management of forests to sustain ecological, economic, and social values. Management and administration of forestry organizations. Timber production in multiple-use and ecosystem management contexts.
- 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.
- 412 Wildland Fire**
Fall. 2(2-0) P:M: (FOR 404 or ZOL 355)
Fire in wildland forest and grassland communities as a physical and ecological process. Fire history, culture, and management. Global perspectives, strategies for prevention and suppression of wildfires. Techniques for using prescribed fire.
- 415 Forest Products Marketing**
Spring. 2(2-0) P:M: (EC 201 or EC 202)
Global marketing of forest products. Domestic and international marketing, trade patterns and policies, resource base dynamics, pricing strategy, and marketing techniques.
- 419 Applications of Geographic Information Systems to Natural Resources Management**
Spring. 4(2-4) Interdepartmental with Fisheries and Wildlife; Geography; Community, Agriculture, Recreation and Resource Studies; Biosystems Engineering. Administered by Department of Fisheries and Wildlife. RB: (GEO 221) Not open to students with credit in GEO 425.
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. Spring: Offered at Huron-Manistee Ntl Frst.. 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.
- 424 Forest Resource Modeling**
Spring of even years. 2(1-2) P:M: (FOR 306 or FW 364 or STT 200 or STT 201)
Understanding and predicting forest growth. Organizing information on observed and measured forest patterns. Predicting forest response. Growth and yield prediction, tree survival modeling, and resource competition modeling.
- 430 Law and Resources**
Fall. 3(3-0) Interdepartmental with Resource Development; Environmental Economics and Policy. Administered by Department of Community, Agriculture, Recreation and Resource Studies. R: Open only to juniors or seniors or graduate students. SA: PRM 430
Legal principles applied to the environment and natural resources. Sovereignty, property rights, land and water use, jurisdiction, public trust doctrine, wetland law, 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 Biotechnology Applications for Plant Breeding and Genetics**
Spring. 3(2-2) Interdepartmental with Crop and Soil Sciences; Horticulture. Administered by Department of Crop and Soil Sciences. RB: (CSS 350 or ZOL 341) and (CSS 441)
Principles, concepts, and techniques of agricultural plant biotechnology. Recombinant DNA technology, plant molecular biology and transformation 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 Community, Agriculture, Recreation and Resource Studies. 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 Forest Resource Economics (W)**
Fall. 3(2-2) P:M: (EC 201 or EC 202) and completion of Tier I writing requirement. R: Not open to freshmen or sophomores.
Basic economic principles that govern human use and production of forest resources. Application of financial and economic analysis techniques to forest resource allocation.
- 466 Natural Resource Policy**
Spring. 3(3-0) 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 the Department of Fisheries and Wildlife or the Department of Community, Agriculture, Recreation and Resource Studies.
Natural resources policy-making in the context of scientific, environmental, social, and legal-institutional factors. Historical evolution of policies and case studies of contemporary policy issues.
- 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) 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: (PLB 105 or BS 110) 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 Forestry**
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.
- 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.
- 810 Forest Hydrology**
Spring. 3(2-2) RB: (CSS 210) and (MTH 116 or LBS 117) Familiarity with forestry, agriculture or natural landscapes. Computer literacy including spreadsheets.
Water inputs, outputs, storage and internal fluxes of forest, rural and wetland ecosystems. Ecological and environmental interpretation of precipitation, soil water, evaporation, leaching, groundwater and stream hydrographs. Quantitative modeling.
- 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 even years. 3(2-2)
Evaluation and inventory of forest soils and landscape ecosystems. Physical, biological, and chemical processes. Nutrient cycling, diagnosis, and fertilization. Variability, geography, and landscape ecology.
- 826 International Development and Sustainability**
Fall. 3(3-0) Interdepartmental with Resource Development; Anthropology; Political Science; Social Science. Administered by Department of Community, Agriculture, Recreation and Resource Studies.
Environmental, economic, political, legal, management, and cultural components of sustainable development.
- 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 Community, Agriculture, Recreation and Resource Studies. 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 Community, Agriculture, Recreation and Resource Studies. 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.
- 838 Land Use Law**
Spring. 3(3-0) Interdepartmental with Resource Development; Agricultural Economics; Urban Planning. Administered by Department of Community, Agriculture, Recreation and Resource Studies. 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 modelling 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; Geography. 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; Geography. 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 in international and 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.

- 881 Building and Implementing Watershed Management Plans**
Fall, Spring, Summer. 3(3-0) Fall: Virtual University. Spring: Virtual University. Summer: Virtual University. Interdepartmental with Resource Development; Fisheries and Wildlife. Administered by Department of Community, Agriculture, Recreation and Resource Studies. RB: (RD 324 and ZOL 355 and RD 452) Not open to students with credit in RD 824.

Problem definition. Data collection. Public consultation. Program evaluation. Case studies include watershed planning in the Great Lakes region.

- 882 Watershed Assessments and Tools**
Fall, Spring, Summer. 3(3-0) Fall: Virtual University. Spring: Virtual University. Summer: Virtual University. Interdepartmental with Resource Development; Fisheries and Wildlife. Administered by Department of Community, Agriculture, Recreation and Resource Studies. RB: (RD 452 and RD 881)

Techniques for assessing and predicting physical, chemical, biological, and socioeconomic conditions within a watershed. Water quality monitoring. Bioassessment protocols. Pollutant loading models.

- 885 Leadership in Natural Resources and Environmental Management**
Fall. 3(3-0) Interdepartmental with Fisheries and Wildlife; Park, Recreation and Tourism Resources; Agricultural Economics. Administered by Department of Fisheries and Wildlife.

Theory and practice of leadership in natural resource and environmental management. Integration across disciplinary and jurisdictional divisions.

- 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**
Fall. 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 812A)

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 Advanced Natural Resource Economics**
Spring. 3(3-0) Interdepartmental with Agricultural Economics; Resource Development; Park, Recreation and Tourism Resources; Economics. Administered by Department of Agricultural Economics. RB: (EC 812A and AEC 829 and FOR 866) SA: AEC 991H

Economic theory of managing nonrenewable and renewable resources, including optimal use, the incentives for use under decentralized markets, and public policy design. Analysis of the co-evolution of economic and ecological systems.

- 941 Quantitative Genetics in Plant Breeding**
Spring of even years. 3(2-2) 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.

- 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 French,
Classics, and Italian
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.

- 290 Independent Study**
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Approval of department.

Special projects arranged by an individual student and a faculty member in areas supplementing regular course offerings.