

- 409. Forest Hydrology**
Spring of even-numbered years. 3(2-3)
Interdepartmental with Crop and Soil Sciences, and Resource Development.
P: CSS 210; MTH 116; CPS 100 or CPS 130 or CPS 131. R: Not open to freshmen and sophomores. Science and technology of the hydrologic cycle and water resources in forest, wildland, wetland, and rural watersheds.
QP: CSS 210, MTH 108, CPS 100 or CPS 115 or CPS 112 QA: FOR 409
- 420. Forestry Field Studies**
Summer: 3 credits. Given only at W.K. Kellogg Biological Station.
P: FOR 304, FOR 306, FOR 404, FOR 406. R: Open only to juniors and seniors in College of Agriculture and Natural Resources.
Major forest management concepts. Ecology, silviculture, soils, biometry. Timber harvesting and use. Forest protection. Field trips required.
QP: FOR 209, FOR 320, FOR 305, FOR 304, FOR 204, CSS 210 QA: FOR 304, FOR 305, FOR 329, FOR 320
- 422. Woody Plant Genetics**
Fall. 3(2-2)
P: BOT 105, BOT 301, CSS 350.
Applications of plant breeding and genetic principles to improve tree species and to preserve biological diversity in forest ecosystems for human benefit.
QP: BOT 205, BOT 301, CSS 350 QA: FOR 410
- 450. Forestry in International Development**
Fall. 4(3-2) Interdepartmental with Sociology.
P: FOR 404 or FOR 464. R: Open only to seniors and graduate students.
Biophysical, social and economic factors influencing design and implementation of farm, village and community level forestry and agroforestry projects.
QA: FOR 464, FOR 474
- 460. Arboriculture**
Fall. 3(2-2)
P: BOT 105; FOR 204, or HRT 211. R: Not open to freshmen and 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.
QP: FOR 204, BOT 205 QA: FOR 460
- 461. Urban Forestry**
Spring. 3(3-0)
P: FOR 204 or HRT 211. R: Not open to freshmen and 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.
QP: FOR 202 or HRT 211 QA: FOR 461
- 464. Natural Resource Economics and Social Science**
Fall. 3(2-2) Interdepartmental with Park and Recreation Resources, Fisheries and Wildlife, and Resource Development.
P: EC 201 or EC 202. R: Not open to freshmen and 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.
QP: EC 201 or EC 202 QA: FOR 455
- 466. Natural Resources Planning and Policy**
Spring. 3(2-2) Interdepartmental with Fisheries and Wildlife, Park and Recreation Resources, and Resource Development.
P: FOR 408; FOR 464 or FW 434 or FW 424; FW 472 or PRR 443 or RD 415 or RD 460. R: Open only to seniors and graduate students in College of Agriculture and Natural Resources.
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.
QP: FOR 455 or RD 417 QA: FOR 466
- 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 and seniors. Approval of department.
Special problems course for students qualified for advanced study in some phase of forestry or wood science
QA: FOR 465
- 801. Forestry Research**
Fall. 1(1-0)
R: Open only to graduate students in Forestry.
The philosophy, nature, and procedures of research in forest science.
- 804. Forest Ecology**
Spring of odd-numbered years. 3(3-0)
P: FOR 404.
Forest productivity, competition and succession. Wildfire, nutrient cycling, timber management. Biodiversity. Gap, wave, and landscape regeneration. Theories and methods of analysis.
QP: FOR 304 QA: FOR 804
- 809. Advanced Wood Technology**
Spring of odd-numbered years. 3(2-2)
R: Open only to graduate students in College of Agriculture and Natural Resources.
Mechanical and physical properties of wood. Sorption, swelling, elasticity, and anisotropy. Composite technology and industry practices.
- 824. Forest Soils**
Fall of odd-numbered 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.
- 835. Silviculture**
Fall of even-numbered 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.
QA: FOR 835
- 845. Forest Resource Policy**
Spring of odd-numbered years. 3(3-0)
Models, processes and analytical methods. Interaction of markets, government, and citizens in policy issue development, formulation, implementation and evaluation.
QA: FOR 850
- 864. Agroforestry Systems**
Spring of odd-numbered years. 3(3-0)
R: Open only to graduate students majors in Botany and Plant Pathology, Crop and Soil Sciences, Forestry, and Horticulture.
Biophysical and ecological aspects of agroecology and agroforestry. Nutrient cycling and the soil, root, tree and crop interface.
- 866. Economics of Renewable Resources**
Spring of even-numbered years. 3(3-0)
Interdepartmental with Resource Development.
P: AEC 821.
Applications of economic theory and analysis to renewable natural resources problems. Focus on renewable resource interactions, including multiple-use forestry and agroforestry.
- 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.
QA: FOR 807
- 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.
QA: FOR 899
- 910. Modeling for Natural Resources Management**
Spring of odd-numbered years. 3(2-2)
Interdepartmental with Resource Development.
P: AEC 892B.
Simulation and optimization models for developing resource management strategies. Decision and policy analysis.
QP: AEC 837 QA: R D 960
- 930. Advanced Forest Genetics**
Fall of odd-numbered years. 2(1-2) Interdepartmental with Horticulture, and Crop and Soil Sciences.
P: HRT 819 or HRT 836.
Applications of genetics, plant breeding, and biotechnology to the improvement, and preservation of diversity, of tree species.
- 976. Multivariate Methods in Agriculture and Natural Resources**
Spring. 4(4-0)
P: STT 422, 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.
QP: STT 423, MTH 334 QA: FOR 976
- 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.
QA: FOR 999

FRENCH **FRN**
**Department of Romance and
Classical Languages
College of Arts and Letters**

- 101. Elementary French I**
Fall, Spring. 4(4-1)
R: No previous experience in French or designated score on French placement test. 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.
QA: FRN 101, FRN 102
- 102. Elementary French II**
Fall, Spring. 4(4-1)
P: 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.
QP: FRN 102 QA: FRN 102, FRN 103
- 150. Review of Elementary French**
Fall, Spring. 3(3-1)
R: Open to students with high school credit in French and designated score on French placement test. Not open to students with credit in FRN 101 or FRN 102.
Review of college first-year French for students who had the language in high school and who need to strengthen communication skills, vocabulary, grammar, and pronunciation before study at the 200 level.
QA: FRN 190

**Descriptions—French
of
Courses**

- 201. Second-Year French I**
Fall, Spring. 4(4-0)
P: 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.
QP: FRN 103 QA: FRN 201, FRN 202
- 202. Second-Year French II**
Fall, Spring. 4(4-0)
P: FRN 201.
Further review and development of aural comprehension, speaking, reading, and writing skills. Topics in the cultures of the French-speaking world.
QP: FRN 202 QA: FRN 202, FRN 203
- 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.
QA: FRN 299
- 320. Grammar and Composition**
Fall, Spring. 3(3-0)
P: FRN 202 or designated score on French placement test.
Systematic review of grammar. Extensive writing in French.
QP: FRN 203 QA: FRN 321, FRN 322
- 330. French Phonetics**
Fall, Spring. 3(3-0)
P: FRN 202 or designated score on French placement test.
Analysis of French pronunciation for listening and speaking.
QP: FRN 203 QA: FRN 300
- 340. Introduction to Reading French Literature**
Fall, Spring. 3(3-0)
P: FRN 202 or designated score on French placement test.
Close reading and interpretation of French drama, poetry, fiction, and other prose forms.
QP: FRN 203 QA: FRN 361
- 350. The Contemporary French Scene**
Fall. 3(3-0)
P: FRN 320, FRN 340.
Institutions, history, arts, and major sociopolitical issues of France and its former colonies from 1945 to the present, with an emphasis on the Fifth Republic; class conducted in French.
QP: FRN 321, FRN 322 QA: FRN 327
- 355. French Literature in English Translation**
Spring of odd-numbered years. 3(3-0)
R: Not open to freshmen.
Representative works and themes of French literature.
QA: FRN 341
- 400. Reading French for Graduate Students**
Spring. 3(3-0)
R: Not open to freshmen and sophomores.
Intensive study of French for graduate students needing a reading knowledge of the language.
QA: FRN 411, FRN 412
- 410. Survey of French Literature I**
Fall. 3(3-0)
P: FRN 320, FRN 340.
French literature from the Middle Ages to the Enlightenment.
QP: FRN 322, FRN 361 QA: FRN 362
- 420. Survey of French Literature II**
Spring. 3(3-0)
P: FRN 320, FRN 340.
French literature from the Enlightenment to the present.
QP: FRN 322, FRN 361 QA: FRN 362
- 425. Advanced Studies in French Language**
Fall. 3(3-0)
P: FRN 320, FRN 340.
Translation, stylistics, composition, creative writing, prescriptive grammar.
QP: FRN 322, FRN 361 QA: FRN 422, FRN 423
- 430. French Linguistics**
Spring. 3(3-0)
P: FRN 320, FRN 330; LIN 401 or ROM 401.
Key issues in French linguistics and contrastive structures of French and English.
QP: FRN 322, FRN 300, LIN 401 QA: FRN 420, FRN 421
- 440. Francophone Cultures and Civilizations**
Spring. 3(3-0)
P: FRN 350.
Social, political, intellectual, and artistic life of France and the French-speaking world in relation to the French language, literatures, and other cultural media.
QP: FRN 327, FRN 361, FRN 322 QA: FRN 435
- 450. French Literature of the Middle Ages**
Fall of even-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Major currents of the Middle Ages as reflected in the writings of representative authors of the period.
QP: FRN 361, FRN 362, FRN 322 QA: FRN 450
- 455. French Literature of the 16th Century**
Spring of even-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Literature reflecting major currents of the Renaissance and Reformation.
QP: FRN 361, FRN 362, FRN 322 QA: FRN 455
- 460. French Literature of the 17th Century**
Fall of odd-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Literature reflecting major currents of the Baroque and classical periods.
QP: FRN 361, FRN 362, FRN 322 QA: FRN 460
- 465. French Literature of the 18th Century**
Spring of odd-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Literature reflecting major currents of the French Enlightenment.
QP: FRN 361, FRN 363, FRN 322 QA: FRN 465
- 470. French Literature of the 19th Century**
Fall of even-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Literature reflecting major currents of nineteenth-century France.
QP: FRN 361, FRN 363, FRN 322 QA: FRN 470
- 475. French Literature of the 20th Century**
Spring of even-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Literature reflecting major currents of the twentieth-century France.
QP: FRN 361, FRN 363, FRN 322 QA: FRN 475
- 480. Literature of Quebec**
Fall of odd-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Major works of Quebec literature from the seventeenth-century to the present.
QP: FRN 361, FRN 363, FRN 322 QA: FRN 485
- 485. Francophone Literatures of the Third World**
Spring of odd-numbered years. 3(3-0)
P: FRN 410, FRN 420.
Francophone literatures of West Africa, the Maghreb, Madagascar, the Caribbean, and Vietnam.
QP: FRN 361, FRN 363, FRN 322 QA: FRN 485
- 490. Independent Study**
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.
R: Not open to freshmen and sophomores. Approval of department.
Special projects arranged by an individual student and a faculty member in areas supplementing regular course offerings.
QA: FRN 499
- 491. Special Topics in French**
Fall, Spring. 3(3-0)
R: Not open to freshmen and sophomores. Approval of department.
Special topics supplementing regular course offerings proposed by faculty on a group study basis.
- 800. Current Approaches to French Instruction**
Fall. 3(3-0)
Theoretical and practical view of methodologies of teaching French.
QA: FRN 800
- 801. Methods of Research in French Literature**
Spring. 1(1-0)
Research tools in French literature.
QA: ROM 800
- 805. Evolution of the French Language**
Fall of even-numbered years. 3(3-0)
Diachronic examination of the phonological, morphological, and syntactic developments of French as it evolved from Latin.
QA: FRN 805
- 806. Topics in French Linguistics**
Spring of odd-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Key issues in theoretical and applied French linguistics. Syntax, morphology, phonology, and semantics. Foreign language acquisition.
QA: FRN 806
- 807. Topics in the Development of French Culture**
Spring of even-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
French culture through the history of ideas, through the evolution of institutions, or through literature and the related arts.
QA: FRN 809
- 810. Studies in Medieval French Literature.**
Spring of odd-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Works of major writers of the French Middle Ages.
QA: FRN 802
- 815. Studies in 16th-Century French Literature**
Fall of odd-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Works of major prose writers and poets of the Renaissance and Reformation.
QA: FRN 810
- 820. French Literature of the 17th Century**
Spring of even-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Works of major writers of the seventeenth century.
QA: FRN 820
- 825. Studies in 18th-Century French Literature**
Fall of odd-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Works of major writers of the French Enlightenment.
QA: FRN 830
- 830. Studies in 19th Century Literature**
Spring of odd-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Major authors and selected topics in poetry, prose, and drama of the nineteenth century.
QA: FRN 840
- 835. Studies in 20th Century Literature**
Fall of odd-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Spiritual, intellectual, psychological, and aesthetic conflicts in texts with world-wide impact.
QA: FRN 865

840. French Quebecois Literature
Spring of even-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
R: Approval of department.
Major authors and selected topics in the poetry, prose, and drama of Quebec.
QA: FRN 871

845. Francophone Third World Literature
Fall of odd-numbered years. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course.
Leading figures, themes, and movements of Francophone literatures outside France. The colonial period, Negritude, satire, commitment and revolution, and problems of independence.
QA: FRN 871

890. Independent Study
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 9 credits in all enrollments for this course.
R: Approval of department.
Special projects, directed reading, and research arranged by an individual graduate student and a faculty member in areas supplementing regular course offerings.
QA: FRN 860

891. Special Topics in French
Fall, Spring, Summer. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course.
R: Approval of department.
Special topics supplementing regular course offerings proposed by faculty for graduate students on a group study basis.

999. Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 24 credits in all enrollments for this course.
R: Approval of department.

QA: FRN 999

GENERAL BUSINESS AND BUSINESS LAW GBL

Department of General Business and Business Law
The Eli Broad College of Business and The Eli Broad Graduate School of Management

395. Law, Public Policy, and Business
Fall, Spring, Summer. 3(3-0)
R: Open only to juniors and seniors in the College of Business or in programs that list GBL 395 as a catalog requirement. Not open to students with credit in GBL 395H.
Structure of the legal system. Basic concepts of constitutional law, torts, contracts, and product liability. Administrative law and government regulation of business.
QA: GBL 431, GBL 341, GBL 450

395H. Law, Public Policy, and Business-1-Honors
Fall. 3(3-0)
R: Open only to Honors College juniors and seniors, or approval of department. Not open to students with credit in GBL 395.
Structure of the legal system and basic concepts of constitutional law, torts, contracts, and product liability. Administrative law and government regulation of business.
QA: GBL 431, GBL 341, GBL 450

420. Role of Law and Lawyers in Society
Fall, Spring. 3(3-0)
P: GBL 395. R: Open only to seniors and graduate students in the College of Business.
Law and its relationship to economics, business, and social justice. Comparative law. Legislative and judicial processes. The role of lawyers. Overview of legal education.
QP: GBL 430

447. Hospitality Law
Fall, Spring. 3(3-0)
P: GBL 395. R: Open only to seniors and graduate students in Hotel, Restaurant and Institutional Management.
Legal aspects of hospitality industry, including contracts and sales, torts, commercial paper, and organization. Dynamics of the changing work force and employment discrimination. Franchising.
QP: GBL 430 QA: GBL 447

451. Law of Commercial Transactions
Spring. 3(3-0)
P: GBL 395. R: Open only to seniors and graduate students in the College of Business.
Law of contracts and sales, commercial paper, secured transactions, consumer credit, and debtor-creditor relationships.
QP: GBL 450 QA: GBL 451

460. International Law and Business
Spring. 3(3-0)
P: GBL 395. R: Open only to seniors and graduate students in the College of Business.
The impact of international law on business practices. Government regulation of international business.
QP: GBL 430 QA: GBL 460

480. Corporate and Professional Social Responsibility
Spring. 3(3-0)
P: GBL 395. R: Open only to seniors and graduate students in the College of Business.
Institutionalization of American working life, large business institutions, and the law. Control of large business institutions. Social obligations of corporations and professions. Impact of institutional values on individual values.
QP: GBL 430

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.
P: GBL 395. R: Open only to seniors. Approval of department.
Program of observation and work in selected business firms and government. Supervised independent research on selected legal topics.
QP: GBL 430 QA: GBL 468

848. Legal Environment of Business
Fall, Spring. 3(3-0)
R: Open only to students in the Professional Accounting, Master of Business Administration programs, and to students in programs for which GBL 848 is a catalog-listed requirement.
The legal, political, and social environment of business and the structural framework in which law functions.
QA: GBL 848

859. Business Legal Environment
Spring. 2(2-0)
R: Open only to Master's students in the Advanced Management Program.
Critical analysis of government regulation of business from legal, political, and social perspectives. An examination of moral concepts and social policy underlying government regulation.
QA: GBL 890

880. Corporate and Professional Social Responsibility
Fall. 3(3-0)
R: Open only to graduate students in Business and students in programs for which GBL 880 is a catalog-listed requirement.
Impact of corporations and professions in societies and across societies. Control of business organizations. Social and moral responsibilities of organizations. The individual's role in a business organization.

890. Independent Study
Fall, Spring, Summer. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course.
P: GBL 848. R: Open only to graduate students in Business. Approval of department.
Faculty-supervised independent study.
QP: GBL 848 QA: GBL 890

GENETICS GEN

College of Natural Science

800. Genetics Seminar
Fall, Spring, Summer. 1(1-0) A student may earn a maximum of 12 credits in all enrollments for this course.
Critical analysis of current literature. Student presentations.
QA: GEN 800

880. Laboratory Rotation
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 Ph.D. majors in Genetics.
Participation in research with faculty members.
QA: GEN 880

890. Selected Topics in Genetics
Fall, Spring, Summer. 2 to 5 credits. A student may earn a maximum of 9 credits in all enrollments for this course.
P: ZOL 341.

Topic selected from molecular genetics, physiological genetics, population genetics, quantitative genetics, microbial genetics, somatic cell genetics, behavioral genetics, human genetics, evolution, or radiology and mutagenesis.
QP: ZOL 341 QA: GEN 890

999. Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 99 credits in all enrollments for this course.
R: Open only to Ph.D. students in Genetics.

QA: GEN 999

GEOGRAPHY GEO

Department of Geography College of Social Science

113. Introduction to Economic Geography
Fall, Spring. 3(3-0)
Spatial distribution of resources, population, enterprise, trade, consumption, and production. Interaction of those distributions at local to global scales.
QA: GEO 213

151. Cultural Geography
Fall, Spring of odd-numbered years. 3(3-0)
Systematic approach to the spatial distribution of cultural features, processes, and relationships.
QA: GEO 201

203. Introduction to Meteorology
Fall. 3(3-0)
Fundamentals of meteorology. Energy balance, adiabatic processes, horizontal motion, cyclogenesis, and severe weather.
QA: GEO 351

206. Physical Geography
Fall, Spring. 3(3-0)
Geographic and functional interrelationships within the physical environment: Earth-sun relationships, weather, climate, soils, vegetation and landforms (terrain characteristics).
QA: GEO 206

206L. Physical Geography Laboratory
Fall, Spring. 1(0-2)
P: GEO 206 or concurrently.
Geographic aspects of weather, climate, soil, vegetation, and terrain. Interpretation and application of maps and remotely sensed imagery.
QA: GEO 206L

223. Introduction to Cartography
Fall. 4(2-14)
Cartographic principles and techniques of making maps. Cartographic decision-making and methods for both conventional and computer mapping.
QA: GEO 223