

ECON: ECONOMICS

- ECON 1500 Survey of Economics** 3-0-3
A survey of basic economic concepts with applications to public policy issues.
- ECON 1900H Honors Economics** 3-0-3
Seminar-oriented approach to basic economic concepts with applications to policy issues. A research project on public policy is required.
- ECON 2105 Principles of Macroeconomics** 3-0-3
An introduction to macroeconomic concepts and their application to aggregate economic activity. Factors influencing rates of economic growth, employment and inflation are emphasized. Measures of aggregate economic activity and policies to control it are covered.
- ECON 2106 Principles of Microeconomics** 3-0-3
An introduction to microeconomic concepts and their application to the behavior of individuals, firms, and market groups. Special emphasis is placed on market analysis, production and cost concepts, profit analysis, and market structure. Current microeconomic issues, including market failures and the role of government in markets, are covered.
- ECON 3000 Research and Analytical Methods in Economics** 3-0-3
Prerequisites: ECON 2105, ECON 2106, and MATH 1261. **Co-requisites:** either BUSA 2100 or MATH 2620. Introduction to empirical research and quantitative analysis. The course includes the components of a research paper, data sources, basic econometric methods, software used for empirical research, and the mathematical concepts and techniques used in the analysis of economic phenomena.
- ECON 3100 Managerial Economics** 3-0-3
Prerequisites: ECON 2106, MATH 1261, and either BUSA 2100 or MATH 2620. Analysis of major decision-making areas within the firm. Students are introduced to demand forecasting techniques, advanced production and cost relationships, and optimal pricing models.
- ECON 3200 Industrial Organization** 3-0-3
Prerequisites: ECON 2106, MATH 1261, and either BUSA 2100 or MATH 2620. A study of market structures, including perfect and monopolistic competition, monopoly, and oligopoly. Pricing behavior of firms, economics of information and advertizing, and anti-trust laws and policies will be analyzed.
- ECON 3300 Economic History of the United States** 3-0-3
Prerequisite: ECON 1500 or ECON 2105. Economic interpretation of United States history and study of economic problems in historical perspective.
- ECON 3400 Public Finance and Fiscal Policy** 3-0-3
Prerequisite: ECON 2105, ECON 2106, and MATH 1261. Comprehensive treatment of economic theory and applications in the field of public finance and fiscal policy. Includes the study of market failure, the provision of public goods, benefit/cost analysis, public expenditures, and the principles of government finance.
- ECON 3500 Business Cycle Analysis** 3-0-3
Prerequisites: ECON 2105, ECON 2106, MATH 1261, and either BUSA 2100 or MATH 2620. Investigation of the application of techniques used by business and government to analyze and forecast business cycle conditions. Special emphasis on regional analysis.
- ECON 3600 International Economics** 3-0-3
Prerequisite: ECON 2105, ECON 2106, and MATH 1261. Survey of the international exchange of goods, services and financial instruments and the policies that affect this exchange. Topics include pattern of trade, effects of trade controls, trade and growth, trade and the distribution of income, balance of payments accounting, exchange rate systems and the effect of trade on employment, prices, and production.

- ECON 3640 International Macroeconomics** 3-0-3
Prerequisite: **ECON 3500 or ECON 3600.** Advanced study of the international exchange of financial instruments and the effects of this exchange on employment, prices, production and the balance of trade (payments). International macroeconomic policy is emphasized.
- ECON 3650 Multinational Corporate Finance** 3-0-3
Prerequisite: **FIN 3350 or ECON 3750.** Theory and practice of multinational corporate and bank operations. Includes the study of foreign exchange markets, risks associated with foreign exchange transactions, accounting consolidations and foreign operations, and appropriate exchange-risk hedging techniques.
- ECON 3710 Urban and Regional Economics** 3-0-3
Prerequisites: **ECON 2105, ECON 2106, and MATH 1261.** Factors that influence the type, level, and location of urban and regional activities. The special aspects of poverty, land use, urban environment, and rural development are explored.
- ECON 3750 Money and Banking** 3-0-3
Prerequisite: **ECON 2105.** Analysis of financial intermediaries, instruments and markets in determining the level and distribution of economic activity.
- ECON 3770 Real Estate Economics** 3-0-3
Prerequisites: **ECON 2105, ECON 2106, MATH 1261, and either ECON 3750 or FIN 3350.** Study of the theories, tools and techniques needed to understand urban real estate markets. Examines real estate markets from both micro and macro perspectives.
- ECON 3800 Environmental Economics** 3-0-3
Prerequisites: **ECON 2106 and MATH 1261.** Application of microeconomic principles to environmental and natural resource policy. Topics include economic efficiency and market failure, valuing the environment, pollution control, exhaustible and renewable resource policy, waste and toxic substance disposal, and the effect of industry and agriculture on the environment.
- ECON 3810 Health Economics** 3-0-3
Prerequisites: **ECON 2106 and MATH 1261.** Comprehensive introduction to the economics of health and health care. Topics include the market for health care, private insurance and health care providers, social insurance, and health system reform.
- ECON 3860 Labor Economics and Labor Relations** 3-0-3
Prerequisites: **ECON 2106 and MATH 1261.** Investigation of the workings and outcomes of the labor market. Topics include the determination of wages, wage differentials, the impact of unions, and the process of collective bargaining.
- ECON 4800 Current Issues in Economics** 3-0-3
Prerequisites: **ECON 2105 and ECON 2106.** Study of a specific, current topic or topics in the field of economics. May be repeated once for additional credit with prior approval of advisor and instructor if different topics are covered in the subsequent course.
- ECON 4900 Economic Research** 3-0-3
Prerequisites: **ECON 3100, ECON 3500, and senior standing.** Study of methods and techniques of economic research. Topics include hypothesis development, modeling, data sources, analytical methods, and presentation techniques. A research paper is required.
- ECON 4990 Directed Study in Economics** **3 hours credit**
Prerequisites: **ECON 3100 and ECON 3500.** Directed research or reading in economics. Proper form must be submitted to the Dean of the College of Business Administration at least two weeks before the beginning of the semester.

Most credit notations on the far right are in the pattern 3-0-3. The first number is the number of lecture hours (or equivalent) each week; the second number is the number of laboratory hours (or equivalent) each week; the third number, **in bold**, is the number of semester hours credit.

ENGL: ENGLISH

ENGL 0099

See the Learning Skills section on the last page of the course offerings.

ENGL 1101 Composition I

3-0-3

A composition course focusing on skills required for effective writing in a variety of contexts, with emphasis on exposition, analysis, and argumentation, and also including introductory use of a variety of research skills. Students will develop analytical and evaluative skills by reading and writing expository and/or argumentative essays.

ENGL 1101H Honors Composition I

3-0-3

An honors-level composition course focusing on skills required for effective writing in a variety of contexts with emphasis on more advanced forms of critical analysis, exposition, and argumentation/persuasion, and also stressing introductory use of a variety of research skills.

ENGL 1102 Composition II

3-0-3

Prerequisite: ENGL 1101 or ENGL 1101H. A composition course focusing on writing skills beyond the levels of proficiency required by ENGL 1101 that emphasizes interpretation and evaluation and that incorporates a variety of more advanced research skills. Students will learn to organize and present ideas and information effectively in research essays.

ENGL 1102H Honors Composition II

3-0-3

Prerequisite: ENGL 1101 or 1101H. An honors-level composition course, focusing on writing skills beyond the levels of proficiency required by ENGL 1102, that emphasizes advanced rhetorical strategies and argument/persuasion. The course also stresses, via an array of theme-based studies, more varied forms of interpretation and evaluation and incorporates more advanced research skills than those taught in ENGL 1102.

ENGL 2000 Writing for Teachers

3-0-3

Prerequisites: Grade of "C" or better in ENGL 1101 and 1102. A writing-intensive course focusing on the analysis and production of discourse in various genres. Required for ECE and MGE majors.

ENGL 2060 Introduction to English Studies

3-0-3

Prerequisite: ENGL 1102 or ENGL 1102H. An introduction to the field of English studies, focusing on the skills in writing, critical reading, interpretation, research, and bibliography as well as on the major critical approaches to language and literature essential to work in the discipline. Required of all English majors.

ENGL 2110 World Literature I: The Ancient World

3-0-3

Prerequisite: ENGL 1102 or 1102H. A study of selected works of literature from the beginning of writing to the end of the classical period. This course presents myths, epics, dramas, and prose works from the Hebrew, Greek, Roman, and other traditions that laid the foundation for modern intellectual thought. Selections from such writers as Homer, Sophocles, and Plato and such works as the Bible and the Koran will be presented in their historical and cultural contexts.

ENGL 2110H Honors World Literature I: The Ancient World

3-0-3

Prerequisite: ENGL 1102 or 1102H. An in-depth study of selected works of literature and their cultural backgrounds from the beginning of writing to the end of the classical period. This course, multicultural and comparative in focus, presents myths, epics, dramas, and prose works from western and non-western traditions that laid the foundation for modern intellectual thought.

- ENGL 2120 World Literature II: The Age of Discovery** 3-0-3
Prerequisite: ENGL 1102 or 1102H. A study of selected works of literature and their cultural backgrounds from the fourteenth into the seventeenth century. This course includes introductions to the Medieval and Renaissance frames of mind and puts works such as those by Dante, Chaucer, Machiavelli, Shakespeare, and Milton in the context of modern intellectual issues.
- ENGL 2120H Honors World Literature II: The Age of Discovery** 3-0-3
Prerequisite: ENGL 1102 or 1102H. A study of selected works of literature and their cultural backgrounds from the Middle Ages into the seventeenth century. This course includes introductions to the Medieval and Renaissance frames of mind of western Europe as well as adding multicultural aspects. Trends in the development of modern thought are emphasized, with a focus on intellectual history.
- ENGL 2130 World Literature III: The Development of Modern Thought** 3-0-3
Prerequisite: ENGL 1102 or 1102H. A study of selected works of literature and their cultural backgrounds from the seventeenth century to the present. This course includes introductions to the Enlightenment, Romantic, Victorian, Modern, and Contemporary periods. Selected works from writers such as Moliere, Pope, Rousseau, Wordsworth, Keats, the Brownings, Eliot, and Faulkner will be presented, emphasizing major trends in the development of modern thought.
- ENGL 2130H Honors World Literature III: The Development of Modern Thought** 3-0-3
Prerequisite: ENGL 1102 or 1102H. An in-depth study of selected works of literature and their cultural backgrounds from the seventeenth century to the present. This course includes introductions to the major concepts and themes represented in trans-national and trans-generic literary texts from periods such as the Enlightenment, Romantic, Victorian, Modern, and Contemporary. Special emphasis on multicultural and comparative aspects of the literature and on large, overarching themes and concepts.
- ENGL 2140 World Literature IV: The Genres of World Literature** 3-0-3
Prerequisite: ENGL 1102 or 1102H. A study of literary forms of cultural expression. This course will cover works written in a broad range of cultures and periods and will include introductions to major genres of world literature such as epic, drama, prose fiction, and film. Selected works by figures such as Homer, Shakespeare, Ibsen, Austen, and Kurosawa will be presented, emphasizing the connections between form, function, and culture.
- ENGL 3010 Writing for Business** 3-0-3
Prerequisites: ENGL 1102 or 1102H. An advanced writing course focusing on the elements of effective writing, particularly as they apply to business and the professions.
- ENGL 3020 Technical Writing** 3-0-3
Prerequisite: ENGL 1102 or 1102H. An advanced writing course focusing on the elements of effective writing, particularly as they apply to the sciences, industry, and other technology-oriented fields.
- ENGL 3030 Writing for the Legal and Social Science Professions** 3-0-3
Prerequisites: ENGL 1102 or 1102H. An advanced writing course focusing on the strategies used to write clear and effective legal and social science communications including memos, case reports, proposals, and briefs.
- ENGL 3050 Tutoring English Composition** 1-0-1
Prerequisites: ENGL 2110 or 2110H, 2120 or 2120H, 2130 or 2130H, 2140, or 2060. A review of the principles of English composition with focus on the revision of student writing. Includes instruction in the holistic evaluation and careful rhetorical analysis of student writing, discussion of the proper scope and available avenues of revision, and examination of the use of computers in the writing and revision process. Students will have supervised tutoring experience.

- ENGL 3060 Literary Research and Writing** 3-0-3
Prerequisite: ENGL 2140 or ENGL 2060. A advanced writing and research course, focusing on the interpretation and evaluation of literature as well as on the role and function of criticism in the study of literature.
- ENGL 3080 Grammar and Editing** 3-0-3
Also offered as JOUR 3080. Prerequisite: ENGL 2110 or 2110H, 2120 or 2120H, 2130 or 2130H, 2060, or 2140. An intensive review of grammar and usage as well as an introduction to the purposes, practices, and techniques of editing standard English. The grammar section of the course will cover such topics as parts of speech and their uses, sentence elements and their effective uses, agreement, punctuation, and parallelism. Students will also be taught fundamental approaches to editing and the practical application of editing techniques.
- ENGL 3090 Advanced Composition** 3-0-3
Prerequisite: ENGL 2110 or 2110H, 2120 or 2120H, 2130 or 2130H, 2060, or 2140. A study of various rhetorical strategies with regular writing assignments emphasizing logical organization of thought and effective composition. The course will develop sound grammatical and compositional skills to a level clearly superior to that of ENGL 1102.
- ENGL 3110 British Literature I** 3-0-3
Prerequisite: ENGL 2140 or 2060. A survey of the historical and formal development of British literature through the mid-eighteenth century. Emphasis on major writers and movements as well as on terms relevant to the study of British literature.
- ENGL 3120 British Literature II** 3-0-3
Prerequisite: ENGL 2140 or 2060. A survey of the historical and formal development of British and post-Colonial literature from the late eighteenth century to the present. Emphasis on major writers and movements as well as on terms relevant to the study of British literature.
- ENGL 3210 American Literature** 3-0-3
Prerequisite: ENGL 2140 or 2060. A survey of the historical and formal development of American literature. Emphasis on major writers and movements as well as on terms relevant to the study of American literature.
- ENGL 3220 Studies in African American Literature** 3-0-3
Also offered as AFAM 3220. Prerequisite: ENGL 2110 or 2110H, 2120 or 2120H, 2130 or 2130H, 2060, or 2140. A study of selected topics in African-American literature. May be repeated, but only 3 hours may be counted toward distribution requirements for the English major.
- ENGL 3300 Special Studies in Literature** 3-0-3
Prerequisite: ENGL 2110 or 2110H, 2120 or 2120H, 2130 or 2130H, 2060, or 2140. Studies of selected topics in literature.
- ENGL 3320 Studies in African Literature** 3-0-3
Also offered as AFAM 3320. Prerequisite: ENGL 2110 or 2110H, 2120 or 2120H, 2130 or 2130H, 2060, or 2140. A study of selected topics in African literature. May be repeated, but only 3 hours may be counted towards distribution requirements for the English major.
- ENGL 3330 Studies in Women and Literature** 3-0-3
Also offered as WMST 3330. Prerequisite: ENGL 2110 or 2110H, 2120 or 2120H, 2130 or 2130H, 2060, or 2140. An examination of selected topics in literature by or about women.
- ENGL 3400 Introduction to Creative Writing** 3-0-3
Also offered as CRWR 3400. Prerequisites: ENGL 2110 or 2110H, 2120 or 2120H, 2130 or 2130H, 2060, or 2140. An introduction to the stylistic conventions and techniques of poetry and prose. The course also emphasizes techniques of literary invention and offers a brief exposure to the analysis and critique of peer texts.

- ENGL 3420 Introduction to Creative Non-Fiction** 3-0-3
Also offered as CRWR 3420. Prerequisite: ENGL 3400 or CRWR 3400.
 An introduction to non-fiction writing which employs a variety of literary techniques common in literary journalism and fiction writing. Students will read model texts and further develop workshop and revision techniques in order to produce a carefully revised piece of their own non-fiction.
- ENGL 3440 Poetry Writing** 3-0-3
Also offered as CRWR 3440. Prerequisite: ENGL 3400 or CRWR 3400. A study of poetic technique beyond the fundamentals introduced in ENGL/CRWR 3400. The course emphasizes prosody and poetic forms, both prescribed and organic. Students receive further training in workshop techniques via the analysis of poems produced by class members.
- ENGL 3460 Fiction Writing** 3-0-3
Also offered as CRWR 3460. Prerequisite: ENGL 3400 or CRWR 3400. A craft-oriented course devoted to the genre of the modern short story. Students will study classic stories by writers such as Chekhov, Maupassant, O'Connor, and more recent award-winning writers as well as undertaking exercises in technique and producing at least two stories of their own.
- ENGL 3600 Introduction to Professional Writing** 1-0-1
Prerequisite or co-requisite: ENGL 3060 or 3080, depending upon major track. An introduction to careers in professional writing as well as to the required skills, applicable technology, and related professional concerns.
- ENGL 4110 Studies in British Literature to 1500** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of medieval literature, focusing on major works, figures (three or more), and/or themes.
- ENGL 4120 Studies in British Literature 1500-1660** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of British literature of the Renaissance period, focusing on major works, figures (three or more), and/or themes.
- ENGL 4130 Studies in British Literature 1660-1800** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of British literature of the Restoration and eighteenth century, focusing on major works, figures (three or more), and/or themes.
- ENGL 4140 Studies in Nineteenth-Century British Literature** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of British literature of the nineteenth century, focusing on major works, figures (three or more), and/or themes.
- ENGL 4150 Studies in Twentieth-Century British Literature** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of British and Post-Colonial literature of the twentieth century, focusing on major works, figures (three or more), and/or themes.
- ENGL 4210 Studies in American Literature to 1800** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of the literature of America from its beginning to 1800, focusing on major works, figures (three or more), and/or themes.
- ENGL 4220 Studies in American Literature 1800-1865** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of the literature of America from 1800 to 1865, focusing on major works, figures (three or more), and/or themes.
- ENGL 4230 Studies in American Literature 1865-1914** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of literature of America from 1865 to 1914, focusing major works, figures (three or more), and/or themes.
- ENGL 4240 Studies in American Literature after 1914** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of literature of America after 1914, focusing on major works, figures (three or more), and/or themes.
- ENGL 4300 Special Topics** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. Studies of literature focusing on selected topics.

- ENGL 4310 Studies in Major Writers** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of the interrelationship of the life and works of one or at most two major figures in literature.
- ENGL 4320 Studies in Poetry** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of the historical and formal development of poetry.
- ENGL 4330 Studies in Prose** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of the historical and formal development of prose (fiction and/or non-fiction).
- ENGL 4340 Studies in Drama** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of the historical and formal development of drama.
- ENGL 4350 Studies in Criticism/Theory** 3-0-3
Prerequisite or Co-requisite: ENGL 3060. A study of literary theory and criticism since Plato, with special emphasis on contemporary theories.
- ENGL 4410 Studies in Prosody and Poetic Form** 3-0-3
Also offered as CRWR 4410. Prerequisite or Co-requisite: ENGL 3060. A study of the theoretical and formal development of prosody and poetic form. The course will emphasize twentieth century poetic developments, covering principal schools and understanding their relationships.
- ENGL 4420 Studies in Narratology** 3-0-3
Also offered as CRWR 4420. Prerequisite or Co-requisite: ENGL 3060. An international study of the history of narrative forms, storytelling methods, and varieties of representation. The course will emphasize the various conventions and strategies which inform fables, folktales, parables, and the longer works which evolved from them.
- ENGL 4500 Document Design** 3-0-3
Also offered as JOUR 4500. Prerequisite or corequisite: JOUR 3510, ENGL 3060, or ENGL/JOUR 3080, or permission of instructor. A study of theory of layout and design, including editorial decision making, photo editing, and production technology for print and on-line media.
- ENGL 4520 Literary Journalism** 3-0-3
Also offered as JOUR 4520. Prerequisite or corequisite: JOUR 3510, ENGL 3060, or ENGL/JOUR 3080, or permission of instructor. A study of the theory and practice of applying fiction techniques to journalistic fact. The course will explore the relationship between literature and journalism, especially in terms of style and subject matter.
- ENGL 4600 Issues in Professional Writing** 3-0-3
Prerequisite or corequisite: ENGL 3060 or 3080, depending upon major track. An advanced writing course examining the application of selected professional writing strategies and principles to contexts in which key rhetorical issues arise. These issues include argument, audience, collaboration, ethics, ethos, purpose, and style.
- ENGL 4610 History of the English Language** 3-0-3
Prerequisite or corequisite: ENGL 3060 or ENGL 3080. A study of the origins and development of the English language.
- ENGL 4620 Survey of the History of Rhetoric** 3-0-3
Prerequisite or corequisite: ENGL 3060 or 3080, depending upon major program. A study of rhetorical theory and its major figures from the classical period to the present.
- ENGL 4630 Writing Technologies** 3-0-3
Prerequisite or corequisite: ENGL 3060 or 3080, depending upon major track. A study of the technologies applicable to professional writing such as desktop publishing, on-line documentation, hypertext, and Internet resources.

- ENGL 4700 Directed Study** 1-0-1 to 3-0-3
Prerequisite or corequisite: ENGL 3060 or 3080, depending upon major track. Individualized studies in selected areas of language and literature, the amount of credit depending upon the requirements. Permission to enroll must be secured from the instructor.
- ENGL 4800 Internship in English** 3 to 12 hours credit
Prerequisite or corequisite: ENGL 3060 or 3080, depending upon major track. Graded “Satisfactory” or “Unsatisfactory.” Supervised work involving writing, for example, in a law office, an agency, a publishing company, or a business. The amount of credit depends upon the requirements. Permission to enroll must be secured from the adviser and the department head.
- ENGL 4900 Senior Seminar** 3-0-3
Prerequisite or corequisite: senior standing and ENGL 3060 or 3080, depending upon major track. A capstone course, focused on selected topics and projects appropriate to the students’ track, designed to help students synthesize their knowledge and reinforce the skills they have acquired as English majors.

**For additional offerings in the Department of English, see
 English as a Second Language (ENSL), Creative Writing (CRWR),
 Journalism (JOUR), and Linguistics (LING).**

ENGR:ENGINEERING

- ENGR 1010 Technological Problem Solving** 3-0-3
Prerequisite: MATH 1111 or higher. Development of the features and principles of problem solving techniques based on a variety of fundamental models for general application, such as physical component, sketching, graphical, and mathematical models. Emphasis is placed on solving problems of a technological nature.
- ENGR 2010 Introduction to Engineering** 3-0-3
 Interpretation of the scope of engineering; introduction to engineering disciplines that form the basis for a variety of career opportunities; engineering design as creative problem solving; lessons from design failures; professionalism and ethics; introduction to problem solving using MATLAB.
- ENGR 2200 Statics** 3-0-3
Prerequisite: PHYS 2211; **prerequisite or corequisite:** MATH 2263. Elements of statics in two and three dimensions; forces and moments; particles, objects, and structures in equilibrium; centroids; distributed forces and beams; friction.
- ENGR 2310 Introduction to Signal Processing** 3-3-4
Prerequisites: CS 1301, MATH 2262. Introduction to signal processing for discrete-time and continuous-time signals. Filtering, frequency response, Fourier Transform, Z Transform. Laboratory emphasizes computer-based signal processing.
- ENGR 2320 Introduction to Computer Engineering** 3-0-3
Prerequisites: CS 1301, MATH 2262. Computer system and digital design principles; architectural concepts, software, Boolean algebra, number systems, combinational datapath elements, sequential logic, and storage elements; design of DRAM control and I/O bus. This course is taught via GSAMS.
- ENGR 2500 Engineering Graphics for Design** 2-2-3
 Introduction to engineering design and three-dimensional visualization; geometric construction; graphical projection and sketching; introduction to descriptive geometry; computer graphics.

- ENGR 3210 Dynamics** 3-0-3
Prerequisite: ENGR 2200. Kinematics and kinetics of particles; kinematics and kinetics of rigid bodies in plane motion; kinematics and kinetics of rigid bodies in three-dimensional motion
- ENGR 3220 Mechanics of Deformable Bodies** 3-0-3
Prerequisite: ENGR 2200. Definition and analysis of strain and stress, applications to axially loaded elements, torsion of circular shafts and bending of beams, introduction to simple plasticity and column stability.
- ENGR 3320 Circuit Analysis** 3-0-3
Prerequisites: ENGR 2310, PHYS2212. **Corequisite:** MATH 3340. Introduction to the basic concepts of DC and AC circuit theory and analysis.

ENSL: ENGLISH AS A SECOND LANGUAGE

- ENSL 0100 Supplemental English for International Students** 3-0-3
Course carries institutional credit only. Required for international students scoring less than 523 on the TOEFL exam. Supplementary work in English to prepare ESL students for academic communication in a university setting. Assignments will help students improve their fluency and accuracy in both written and oral English.

FIN: FINANCE

- FIN 2380 Personal Finance** 3-0-3
 A non-technical introduction to personal financing decisions. Emphasis is placed on developing an understanding of budgeting, insurance, taxes, investments, home ownership and family financial planning.
- FIN 3350 Financial Management** 3-0-3
Prerequisite: ACCT 2102, ECON 2106. **Corequisite:** BUSA 2100. Introduction to the principles of financial management as applied to the firm including financial analysis, acquisition of funds, capital structure, dividend policy, working capital management, and evaluation of investment projects.
- FIN 3360 Advanced Financial Management** 3-0-3
Prerequisite: FIN 3350. Continuation of FIN 3350 with a concentration on financial analysis, valuation of assets, risk analysis, cash flow projections, and long-term financing decisions.
- FIN 4310 Problems in Financial Management** 3-0-3
Prerequisite: FIN 3360 with a grade of "C" or better. An advanced study of the principles of financial management through the use of case analysis on topics covering financial analysis and planning, valuation, capital budgeting, working capital management, and financing.
- FIN 4520 Investments** 3-0-3
Prerequisite: FIN 3360 with a grade of "C" or better. **Prerequisites for non-Finance Majors: Consent of Instructor and FIN 3350.** An introduction to personal investing in financial and non-financial assets including stocks, bonds, and mutual funds. A discussion of securities markets, how new issues are brought to market, and how existing securities are traded. Includes material on identifying and evaluating the risk of investing.

- FIN 4760 Financial Institution Management** 3-0-3
Prerequisite: FIN 3360 with a grade of “C” or better. Principles of financial institution management. Topics include functions and types of financial institutions, regulation of financial institutions, financial statement and performance analysis for financial institutions, credit and interest rate management, asset and liability management, and non-interest income management.
- FIN 4900 Current Issues in Finance** 3-0-3 each
Prerequisite: FIN 3360 with a grade of “C” or better. A survey of selected finance topics. The underlying theory and practical implications of these topics to the business world are examined. May be taken more than once if the topics are different, up to 9 hours.
- FIN 4980 Finance Internship** 3 hours credit
Prerequisite: Faculty approval. Graded “Satisfactory” or “Unsatisfactory.” The application of academic finance skills and values in an employment situation. A research project, approved by a faculty member and the employer, is required.
- FIN 4990 Directed Study in Finance** 3 hours credit
Prerequisite: Faculty approval. A special project undertaken by the student. The project is guided by a faculty member and culminates in a research report.

FLED: FOREIGN LANGUAGE EDUCATION

- FLED 3500 Foreign Language in the Elementary School** 1-0-1
Co-requisite: FLED 3510. A study of current methodological and technological trends in curriculum and instruction at the elementary school level, including the traditional content-based foreign language in the elementary school (FLES) programs, foreign language exploratory programs (FLEX), and language immersion and two-way immersion programs.
- FLED 3510 Elementary Classroom Laboratory** 0-2-1
Co-requisite: FLED 3500. Implementation and assessment of appropriate elementary (P-5) classroom activities and lessons for second language acquisition in collaboration with a primary school teacher and university member.
- FLED 4500 Curriculum and Methods of Foreign Languages** 2-0-2
Prerequisite: Senior standing. **Co-requisite:** FLED 4510. Methods of teaching foreign languages at the secondary-school levels to students whose first language is English. Review of theories of second language acquisition, instructional strategies and materials, methods of evaluating proficiency and progress, curriculum, and professional organizations and resources.
- FLED 4510 Classroom Laboratory** 1-0-1
Co-requisite: FLED 4500. Implementation and assessment of appropriate classroom activities and lessons in collaboration with a secondary teacher and university faculty.
- FLED 4600 Methods and Materials for Teaching ESOL** 3-0-3
Prerequisites: LING 4000 and LING 4160. Methods of teaching English at both the elementary- school and secondary-school levels to students whose first language is not English. Review of theories of second language acquisition, instructional strategies and materials, methods of evaluating proficiency and progress, curriculum, and professional organizations and resources.
- FLED 4780 Internship in Foreign Language Education** 6 hours credit
Prerequisite: Completion of course work and consent of department. Supervised teaching experience in foreign language education providing for demonstration of teaching competency. Six hours per semester for a maximum of 2 semesters.

FLED 4790 Student Teaching**10 hours credit**

Prerequisite: Senior Standing. **Corequisite:** FLED 4800. The capstone experience providing opportunity for students to implement theory and instructional practices in secondary classrooms; supervised observation, teaching, classroom management and evaluation; acquaintance with the administration of a school and the school program; selection and use of appropriate instructional materials; conferences with supervisors.

FLED 4800 Professional Development Seminar**2-0-2**

Prerequisite: Senior Standing. **Corequisite:** FLED 4790. The capstone experience requiring student teachers to reflect upon their teaching experiences through interactions with peers, secondary education professionals and other educators in their content area. The preparation and presentation of a portfolio reflecting their student teaching experience is required.

FREN:FRENCH**FREN 1001 Beginning French Language and Introduction to Francophone Cultures, I****3-0-3**

Emphasis on the development of proficiency and communicative competence at the novice level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness of various sociocultural aspects and the distinctiveness of certain cultural traditions. FREN 1001 is not open for credit to students with two or more years of high school French or the equivalent.

FREN 1002 Beginning French Language and Introduction to Francophone Cultures, II**3-0-3**

Prerequisite: FREN 1001 or the equivalent. A continuation of FREN 1001, with emphasis on proficiency and communicative competence at the novice level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness of various sociocultural aspects and the distinctiveness of certain cultural traditions.

FREN 1111 Intensive French Language and Francophone Cultures**3-0-3**

Prerequisite: Two or more years of high school French or the equivalent. Emphasis on the development of proficiency and communicative competence at the novice level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness of various sociocultural aspects and the distinctiveness of certain cultural traditions. FREN 1111 is a one-semester combination of FREN 1001 and FREN 1002. This course is designed for those students not fully prepared for the 1002 level. FREN 1111 reviews the concepts presented in FREN 1001 and advances the student through the material of FREN 1002.

FREN 2001 Intermediate French Language & Francophone Cultures, I**3-0-3**

Prerequisite: FREN 1002 or the equivalent. Emphasis on the development of proficiency and communicative competence at the intermediate level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness and understanding of various sociocultural aspects and the distinctiveness of certain cultural traditions.

FREN 2002 Intermediate French Language & Francophone Cultures, II**3-0-3**

Prerequisite: FREN 2001 or the equivalent. A continuation of FREN 2001, with emphasis on proficiency and communicative competence at the intermediate level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness and understanding of various sociocultural aspects and the distinctiveness of certain cultural traditions.

- FREN 3000 French Grammar and Composition** 3-0-3
Prerequisite: FREN 2001 and FREN 2002 or MCL departmental approval. A thorough review and expansion of the main grammatical concepts, rules, and applications studied in FREN 1001, 1111 or 1002, 2001, and 2002 courses. A practical application of grammar study through translations (English to French), formal/informal writing and refinement of self-editing skills.
- FREN 3110 French Culture and Civilization I** 3-0-3
Prerequisite: FREN 2002 or permission of instructor. A survey of the historical, sociological, literary, and artistic developments of France up to modern times. As part of the Georgia French Collaborative, this is a distance-learning course conducted in French.
- FREN 3120 French Culture and Civilization II** 3-0-3
Prerequisite: FREN 2002 or permission of instructor. A survey of the historical, sociological, philosophical, literary, and artistic developments of modern-day France and the Francophone world. As part of the Georgia French Collaborative, this is a distance-learning course conducted in French.
- FREN 3301 Conversation and Composition I** 3-0-3
Prerequisite: FREN 2002 or consent of instructor. The development of students' proficiency in spoken and written French. Conversations will be based on communicative situations which students would encounter in the French-speaking world. Written activities will enable the student to react to typical exchanges which require written responses.
- FREN 3302 Conversation and Composition II** 3-0-3
Prerequisite: FREN 3301 or consent of instructor. Continued development of students' skills in spoken and written French. The students will discuss and write topics that include narration, defense of ideas, criticism, hypotheses, literature, etc.
- FREN 3400 Introduction to Literature** 3-0-3
Prerequisite: FREN 2002 or consent of instructor. The development of students' reading skills and knowledge of the major literary genres. Texts are from contemporary sources and traditional literary selections of prose, poetry, and theater.
- FREN 3410 Francophone Literature** 3-0-3
Prerequisite or co-requisite: FREN 3301 or consent of instructor. Selected works of twentieth-century Francophone writers from the French-speaking community outside of France, especially the Caribbean, Africa, and Quebec.
- FREN 3450 Current Events of the French-Speaking World** 2-0-2
Prerequisite: FREN 3301 or consent of instructor. A practical study of French TV and radio programs and other authentic media sources.
- FREN 3610 Women Writers of Seventeenth-Century France** 3-0-3
Prerequisite: FREN 3400 or consent of instructor. Selected literary works of major women writers of seventeenth-century France.
- FREN 3621 Survey of French Literature I** 3-0-3
Prerequisite: FREN 3400 or consent of instructor. Selected major literary works, authors, and literary movements of France from the Middle Ages through the eighteenth century.
- FREN 3622 Survey of French Literature II** 3-0-3
Prerequisite: FREN 3400 or consent of instructor. Selected major literary works, authors, and literary movements of France from the nineteenth century to the present.
- FREN 3630 Topics in French Language or Literature** 1-0-1
Prerequisite: FREN 3302 and FREN 3400 or consent of instructor. Intensive study to improve the student's ability in a particular area of French language or Francophone literature. This course requires independent work of the student and may be repeated with different topics for a total of 3 hours.

- FREN 4110 Advanced Grammar and Composition** 3-0-3
Prerequisite: FREN 2002 or consent of instructor. An advanced study of grammar, syntax, and vocabulary, with refinement of writing skills through composition. As part of the Georgia French Collaborative, this is a distance-learning course conducted in French.
- FREN 4210 Business French** 3-0-3
Prerequisite: FREN 2002 or permission of instructor. An introduction to the economic and business practices of contemporary France and the Francophone world. As part of the Georgia French Collaborative, this is a distance-learning course conducted in French.
- FREN 4400 French Phonetics and Advanced Conversation** 3-0-3
Prerequisite: FREN 3302 or consent of instructor. Study of phonetic principles and their applications.
- FREN 4420 French Translation: English to French** 3-0-3
Prerequisite: FREN 4410 or consent of instructor. Translation techniques from English to French, including idiomatic expressions and extensive practice in written French.
- FREN 4650 French Literature of the Twentieth Century** 3-0-3
Prerequisite: FREN 3622 or consent of instructor. Selected major literary works of France, from 1901 to the present.
- FREN 4950 Directed Study** 3-0-3
Prerequisite: FREN 4400, FREN 4410, or consent of instructor. Study in an area or topic of Francophone literature or the French language not normally found in established courses offered by the department. The work is done under the supervision of a professor.
- FREN 4960 Study Abroad Special Topics** 3-0-3
Consult the Department of Modern and Classical Languages regarding arrangements, requirements, and credit. May be repeated for a maximum of 9 hours if topics are different.
- FREN 4970 Study Abroad Practicum** 1 hour credit
Prerequisite: FREN 2002 or consent of the instructor. Orientation to the study abroad experience. Pre-departure sessions will focus on preparing the student to achieve the maximum learning potential from his/her stay in the selected site. Assigned readings and videos and regular discussion with the supervising instructor will familiarize the student with significant cultural practices that may differ from those of U.S. society and with geographical and historical features of the region as well as prepare him/her to function in the daily life of the community. A series of activities will be designed for the student to complete during the study abroad stay, and upon his/her return, the student will make at least three presentations related to the study abroad experience to university French classes, elementary, middle or high school classes, or community organizations. The course is a requirement for all French majors and minors who participate in a study abroad program. Credit for the course is in addition to other credit earned through the study abroad program.
- FREN 4980 Community Practicum** 1 hour credit
Graded "Satisfactory" or "Unsatisfactory." A practical application of students' skills in French. Students will either tutor students enrolled in public or private schools or complete a research project that requires extensive use of all language skills. This course may be repeated for up to 4 credit hours. Field trips comprise 70% of the final grade.
- FREN 4990 Senior Seminar** 3-0-3
Prerequisite: Senior Standing. An all-inclusive communication skills course. This course focuses on the four basic skills: reading, listening, speaking and writing. It is designed to assess and reinforce the skills the student has acquired as a French major. Required of all French majors.

GENS: GENERAL STUDIES

- GENS 2000 Introduction to Interdisciplinary Studies** 3-0-3
An introduction to the theory of interdisciplinarity. The course focuses on exploring common pathways and connections among disciplines. It enables students to develop a personal theory of interdisciplinary studies and culminates in a detailed plan for an individualized major.
- GENS 4000 Interdisciplinary Studies Capstone** 3-0-3
Planned seminars, directed study, and a project will be used to demonstrate mastery of interdisciplinary study. The course provides the opportunity for synthesis and critical assessment of multiple interdisciplinary foci into a coherent whole.
- GENS 4100 General Studies Seminar** 3-0-3
Prerequisite: Approval of the General Studies Coordinator. A seminar incorporating selected topics to include primary field of study, ethical issues, and selected topics of interest providing a capstone experience.
- GENS 4200 Directed Study in Human Resources** 1-0-1 to 3-0-3
Prerequisite: Senior standing and permission of advisor, instructor, and General Studies Coordinator. Directed research, readings, or project in the field of human resources with regular conferences between instructor and student. An opportunity for mature students with experiential learning to integrate theory and practical applications on a one time basis.
- GENS 4900 Internship** 3 to 15 hours credit
Prerequisite: Senior standing, advisor's and General Studies Coordinator's approval. A supervised practical experience to integrate theories and practical applications of the various components of the program. The number of credit hours granted is dependent upon the program, academic work, requirements, and nature of participation.

GEOG: GEOGRAPHY

- GEOG 1100 Introduction to Geography** 3-0-3
A broad introduction to the field of geography, with its various traditions, subfields, and associated technologies. Topic areas covered include the multiple aspects of cultural and physical geography and tools used in the discipline, such as Geographic Information Systems (GIS) and Global Positioning Systems (GPS).
- GEOG 1101 Introduction to Human Geography** 3-0-3
A survey of global patterns of resources, population, culture and economic systems. Emphasis is placed upon the factors contributing to these patterns and the distinctions between the technologically advanced and less advanced regions of the world.
- GEOG 1102 World Regional Geography** 3-0-3
Examination of the interaction among the developed and developing regions of the world. Particular emphasis is placed on the interrelationships of historical, cultural, economic and political elements in critical areas of the world.
- GEOG 1103 Geographic Perspectives on Multiculturalism in the U.S.** 3-0-3
Geographic factors underlying multi-culturalism and ethnic relationships in the U.S. Three interrelated themes are emphasized: the spatial development and organization of culture; population growth, migration, and urbanization; and the spatial dimensions of political, economic, and social processes.
- GEOG 1110 Our Hazardous Environment** 3-0-3
Also offered as GEOL 1110. A detailed examination of physical environmental hazards that influence human health and habitation. Lectures focus on the causes, processes, and results

of naturally occurring and human-induced geologic, hydrologic, and atmospheric events, such as earthquakes, mudflows, floods, hurricanes, soil erosion, and nuclear and toxic waste. Some mathematics is used.

GEOG 1112K Introduction to Weather and Climate 3-2-4

Pre-or corequisite: MATH 1101 or higher. Weather components, processes, and their measurements. Climatic elements and their control factors and geographic classification of climatic and vegetation types are also discussed.

GEOG 1113K Introduction to Land Forms 3-2-4

Pre-or corequisite: MATH 1101 or higher. Introductory analysis and classification of major types of land surfaces, stressing geographic characteristics. Study and interpretation of relationships between landforms and other phenomena through maps, aerial photos, and field observations. World coverage with emphasis on North America.

GEOG 2010 Tools of Environmental Geography 0-2-1

An introduction to research techniques for the incoming Environmental Geography major. Includes laboratory safety, research methods, exploration of resources (library and Internet), and an outline of the discipline.

GEOG 3020 Geoscience Perspectives on Global Climate Change 1-0-1

Also offered as GEOL 3020. Prerequisite: GEOG/GEOL 1110 or GEOG 1113K or GEOL 1121K. Study of global climate change from the perspective of the geoscientist. Topics include whether or not global climate change is occurring, possible causes of global climate change, climate change in the geologic record, implications of climate change on the human population, and proposed methods and policies designed to limit or reverse processes believed to lead to global climate change.

GEOG 3050 Computer Cartography and Image Analysis 2-2-3

An introduction to digital production of general and thematic maps. Lectures and laboratory exercises cover principles of cartography and remote sensing as well as the manipulation and visualization of spatial data and imagery.

GEOG 3051 Introduction to Geographic Information Systems 2-2-3

Prerequisite: Junior standing or permission of the instructor. An examination of geographic information systems, including methods of capture, storage, analysis, and display of spatially-referenced data. Laboratory exercises provide experience with typical GIS operations and applications.

GEOG 3052 Advanced Geographic Information Systems 2-2-3

Prerequisite: GEOG 3051. Advanced applications of GIS including: overlay analysis, writing short macros for repetitive operations, spatial modeling and technical support of complex land use and natural resource management decision making. Laboratory exercises designed to form a cartographic and software portfolio for students.

GEOG 3053 Application Issues in Geographic Information Systems 3-0-3

Prerequisite: GEOG 3051. Operational and planning issues in GIS. Students will learn which issues need to be considered when proposing and implementing software/hardware GIS and will have opportunities to evaluate how a GIS can be used to solve specific planning problems.

GEOG 3100 Regional Planning and Environmental Management 3-0-3

Prerequisite: Consent of instructor. Introduction to planning for economic development, service provision and resource management at scales larger than municipalities with an emphasis on the environmental impacts of planning policy and regulation.

GEOG 3120 Geosciences Field Trip 3 hours credit

Also offered as GEOL 3120. Prerequisites: GEOG 1113K or GEOL 1121K. A study of the geology and geography of a selected region during the first week, followed by a two-week field trip to points of interest. The interactions among geology, surficial processes, and organisms and how those interactions impact humans will be emphasized. Field trip destination is different each summer. Student fee required. Offered only during Sumer Session I.

- GEOG 3150 Meteorology and Climatology** 3-0-3
Prerequisites: GEOG 1112 and 1113, MATH 1113. A detailed examination of atmospheric motions and climatic controls including the Earth's radiation and energy balance, air mass dynamics, weather systems, and past and present climates of the Earth.
- GEOG 3200 History of Life** 2-3-3
Also listed as GEOL 3200. Prerequisite: Sophomore standing and consent of instructor. Principles of paleontology with emphasis on the history of life including vertebrates. Includes an account of the outstanding forms of life from the beginning of earthtime to the present, and those paleontologically significant groups that are uncommon, different, or extinct today.
- GEOG 3210 An Introduction to Hydrology** 3-2-4
Also listed as GEOL 3210. Prerequisites: GEOL 1121 or GEOG 1112, and GEOG 1113. An introduction to surface and sub-surface hydrology, examining components of the hydrologic cycle. Topics include local and global water balance, precipitation, interception and infiltration, runoff, stream flow, water storage, and groundwater. This course makes use of some mathematical equations.
- GEOG 3240 Hydrogeology** 3-0-3
Also listed as GEOL 3240. Prerequisites: GEOL 1121 or GEOG 1112, and GEOG 1113. Introduction to the hydrology of groundwater. Study of the subsurface part of the hydrologic cycle and description of the occurrence, movement, and management of groundwater as a renewable resource. Special emphasis on surface water-groundwater interactions, sensitivity of karst aquifers to environmental stresses, water quality, groundwater contaminations, and field methods that are applied in groundwater studies. Weekend field trip(s) required.
- GEOG 3300 An Introduction to Process Geomorphology** 3-3-4
Also listed as GEOL 3300. Prerequisite: GEOL 1121, or GEOG 1112 and GEOG 1113. An introduction to process geomorphology examining landforms and their formative processes. Topics include weathering and slope, fluvial, coastal, aeolian, glacial and periglacial processes, and the application of soils to geomorphology. This course makes use of some mathematical equations. Field trip required.
- GEOG 3310 Physiography of North America** 3-0-3
Prerequisites: GEOL 1121, or GEOG 1112 and 1113, or consent of the instructor. The physiographic description, including the landforms, soils, structural framework, climate, plant and animal geography, natural resources, and the unique environmental problems of each major physiographic province of the United States and Canada, including Alaska, Hawaii, and Puerto Rico.
- GEOG 3320 Geomorphology of Fluvial and Coastal Environments** 3-0-3
Prerequisite: GEOG 3300. An examination of processes and landforms in fluvial (river) and coastal environments. Fluvial topics include channel geometry and pattern, characteristics of flow, sediment load, bedforms, and floodplains. Coastal topics include the study of waves and tides, coastal sediment transport, beaches, and the effects of changing sea level. This course makes use of some mathematical equations.
- GEOG 3330 Geology, Hydrogeology, and Environmental Issues in Georgia** 3-0-3
Also listed as GEOL 3330. Prerequisite: GEOL 1121K. An overview of the geologic framework of Georgia and surrounding states, with emphasis on topical hydrogeologic and environmental issues that impact Georgia's environment. Students receive the appropriate geologic background necessary for careers that address environmental issues in the southeastern United States. One or more field trips to locations in the area will be included.
- GEOG 3410 Cultural Geography** 3-0-3
Prerequisite: consent of the instructor. A study of the Earth as the home of humankind, emphasizing the spatial and functional complexes of human geography. Topics to be considered are population, settlement form, settling processes, resources, and economic, political, and societal organizations.

- GEOG 3510 Urban Community Planning** 3-0-3
Principles and applications of planning for neighborhoods, towns and cities with an emphasis on the United States. Topics covered include: public services, land-use decision making, economic development, growth management and the role of non-government organizations.
- GEOG 3610 Economic Geography** 3-0-3
Prerequisites: GEOG 1102, or GEOG 1112 and 1113, or consent of the instructor. A study of areal variations in human economic activities as related to production, exchange, and consumption of economic goods and services. Emphasis is placed on location of economic activities and related theories.
- GEOG 3710 Environmental Soil Science** 3-3-4
Also listed as GEOL 3710. Prerequisites: CHEM 1211K; GEOG 1113K or GEOL 1121K. Soil properties, distribution and classification, factors of soil formation, and the relationships among soils, geomorphology, and the environment, stressing analysis and use of soils and soil databases for proper urban, agricultural, and environmental land use.
- GEOG 3810 Introduction to Biogeography** 3-0-3
Prerequisites: GEOG1112, GEOG 1113, and BIOL 2010, or consent of the instructor. An overview of spatial and temporal patterns in the distributions of plant and animal species across the Earth's surface. Topics covered include ecosystem dynamics, biodiversity, competition and predation, interpreting past life, effects of climate change, and effects of community disturbances.
- GEOG 3910 European Geography** 3-0-3
A survey of European geography, with a special emphasis on the European Union. Topic areas covered include physical, economic, political, and cultural geography of Europe.
- GEOG 3920 Geography of the Middle East** 3-0-3
A survey of the nations of the Middle East, with a special emphasis on the Arab-Israeli conflict. Topic areas covered include physical, economic, political, and cultural geography of the Middle East.
- GEOG 4700 Field Methods in Environmental Geography** 2-4-4
Prerequisite: Junior Standing and consent of instructor. Study of field techniques and field problems in physical geography. Course includes classroom presentations, field projects, field trips, and writing technical reports.
- GEOG 4800 Internship in Environmental Geography** 3 to 6 hours credit
Prerequisite: consent of instructor and department head. Graded "Satisfactory" or "Unsatisfactory." A supervised, practical experience using physical geography skills in an appropriate organization. Provides the student with an opportunity to apply skills learned during pursuit of environmental geography degree to real world situations.
- GEOG 4850 Capstone in Environmental Geography** 3-0-3
Prerequisite: consent of instructor. Discussion of the scholarly use of materials in various aspects of physical geography, training for effective data collection and analysis, and practice in effective presentation in both written and oral form.
- GEOG 4860 Senior Thesis I** 2-0-2
Prerequisite: Senior standing and consent of the instructor. The first course in a two-semester research project designed by the student and supervising faculty member(s) in a suitable area of interest. Students will prepare and present the results of their research project as both an oral presentation and written paper. This project may incorporate any of the diverse areas of study related to the field of Environmental Geography approved by the supervising faculty. This course will allow students to apply the knowledge acquired from prior coursework in the Environmental Geography program to a real world research project within the discipline. Students will design their project and gather data during this portion of the course sequence.

- GEOG 4861 Senior Thesis II** 2-0-2
Prerequisite: GEOG 4860. The second course in a two-semester research project designed by the student and a supervising faculty member in a suitable area of interest. Students will prepare and present the results of their research project as both an oral presentation and written paper. This project may incorporate any of the diverse areas of study related to the field of Environmental Geography as long as it is approved by the supervising faculty. This course will allow the student to apply the knowledge acquired from prior coursework in the Environmental Geography program to a real world research project within the discipline. Students will continue data collection begun in Senior Thesis I, in addition to data analysis and presentation of their project
- GEOG 4900 Special Topics in Geography** 1-0-1 to 4-4-6
Prerequisite: consent of instructor. Topic to be assigned by instructor; the course may be repeated more than once if the topics are different.
- GEOG 4990 Directed Study in Geography** 1-0-1 to 4-4-6
Prerequisite: at least Junior standing and permission of advisor, instructor, and Department Head. Study in area or subject not normally found in established courses offered by the department; may also allow students to explore in more detail and/or depth an area or subject covered by the department.

GEOL:GEOLOGY

- GEOL 1110 Our Hazardous Environment** 3-0-3
Also offered as GEOG 1110. A detailed examination of physical environmental hazards that influence human health and habitation. Lectures focus on the causes, processes, and results of naturally occurring and human-induced geologic, hydrologic, and atmospheric events, such as earthquakes, mudflows, floods, hurricanes, soil erosion, and nuclear and toxic waste. Some mathematics is used.
- GEOL 1121K Principles of Physical Geology** 3-2-4
Pre- or corequisite: MATH 1101 or higher. An introduction to the physical processes responsible for the formation and ever-continuing modification of our Earth. Topics covered include the structure of the Earth and plate tectonics, volcanoes and earthquakes, formation of minerals and the rock cycle, origin and evolution of the landscape, and groundwater and energy resources.
- GEOL 1122K Principles of Historical Geology** 3-2-4
Pre- or co-requisite: MATH 1101 or higher. An introduction to the physical and biological development of the Earth from its cosmic beginning to the present, with emphasis on reconstructing sedimentary environments, tectonic processes, and life forms represented in selected regions of North America. Topics covered include families of rocks, principles and concepts of geologic time, origin and interpretation of sedimentary rocks, evolution, plate tectonics, origin of the solar system, and a survey of Earth history through time.
- GEOL 3010 Environmental Geology** 2-2-3
Prerequisite: Two natural science lab courses. The application of basic geologic principles and techniques to problems in land-use planning, resource management, waste disposal, conservation, energy plant siting, under-and-above-ground construction, subsidence, construction in seismic areas, slope-stability, urban development and other problems resulting from human interaction with the geological habitat.
- GEOL 3020 Geoscience Perspectives on Global Climate Change** 1-0-1
Also offered as GEOG 3020. Prerequisite: GEOG/GEOL 1110 or GEOG 1113K or GEOL 1121K. Study of global climate change from the perspective of the geoscientist. Topics include whether or not global climate change is occurring, possible causes of global climate change, climate change in the geologic record, implications of climate change on the

human population, and proposed methods and policies designed to limit or reverse processes believed to lead to global climate change.

GEOL 3050 Oceanography 3-0-3

Prerequisite: Two natural science lab courses. The physical, chemical, geological, and biological characteristics of the ocean and the interactions between the hydrosphere, lithosphere, atmosphere, and biosphere.

GEOL 3100 Principles of Mineralogy/Petrology 3-3-4

Prerequisites: Sophomore standing, GEOL 1121K and GEOL 1122K, and consent of instructor. An introduction to mineral and rock identification, and the study of the genesis, occurrence, and uses of common minerals and rocks. Laboratory consists of identification of common rocks and minerals.

GEOL 3101 Mineralogy 3-3-4

Prerequisites: GEOL 1121K and CHEM 1151K-1152K, or their equivalents, and/or consent of the instructor. The classification, identification, and crystallography of the principal rock-forming minerals, silicate and non-silicate; and the introduction to the use of the petrographic microscope in the study of the crystallography and identification of minerals.

GEOL 3102 Petrology and Petrography 3-3-4

Prerequisite: GEOL 3101 and/or consent of instructor. Genesis, classification, and properties of igneous, metamorphic, and sedimentary rocks. Laboratory includes the use of analytical methods, hand specimens, thin-section study with the petrographic microscope, and the macroscopic and microscopic properties of important rock types.

GEOL 3103 Environmental Mineralogy and Clay Materials 3-3-4

Prerequisites: GEOL 1121K and CHEM 1211K. An introduction to basic concepts of crystallography, mineralogy, and clay minerals, stressing environmental uses and applications. Includes mineral systems, analytical techniques, and basic clay surface chemistry. Laboratory exercises focus on practical applications of mineralogy useful to the modern environmental scientist. Weekend field trips required.

GEOL 3120 Geosciences Field Trip 3 hours credit

Also offered as GEOG 3120. Prerequisites: GEOG 1113K or GEOL 1121K. A study of the geology and geography of a selected region during the first week, followed by a two-week field trip to points of interest. The interactions among geology, surficial processes, and organisms and how those interactions impact humans will be emphasized. Field trip destination is different each summer. Student fee required. Offered only during Sumer Session I.

GEOL 3200 History of Life 2-3-3

Prerequisite: Sophomore standing and consent of instructor. Principles of paleontology with emphasis on the history of life including vertebrates. Includes an account of the outstanding forms of life from the beginning of earthtime to the present, and those paleontologically significant groups that are uncommon, different, or extinct today.

GEOL 3210 An Introduction to Hydrology 3-2-4

Also listed as GEOG 3210. Prerequisites: GEOL 1121 or GEOG 1112 and GEOG 1113. An introduction to surface and sub-surface hydrology, examining components of the hydrologic cycle. Topics include local and global water balance, precipitation, interception and infiltration, runoff, stream flow, water storage, and groundwater. This course makes use of some mathematical equations.

GEOL 3220 Invertebrate Paleontology 2-2-3

Prerequisites: GEOL 1122K or BIOL 2270 or permission of instructor. Identification, classification, and natural history of major groups of invertebrates preserved as fossils in the geologic record, with special attention to those forms commonly encountered in the southeastern United States. Emphasis in laboratory will include taxonomic affinities and functional morphology. Saturday (optional) field trips will be scheduled to local areas of interest.

- GEOL 3230 Vertebrate Paleontology** 2-2-3
Prerequisites: GEOL 1121K and GEOL 1122K, or BIOL 2010 and BIOL 2270. Geologic history and evolution of animals with backbones, with coverage of extinct groups such as the Dinosauria.
- GEOL 3240 Hydrogeology** 3-0-3
Also listed as GEOG 3240. Prerequisites: GEOL 1121 or GEOG 1112, and GEOG 1113. Introduction to the hydrology of groundwater. Study of the subsurface part of the hydrologic cycle and description of the occurrence, movement, and management of groundwater as a renewable resource. Special emphasis on surface water-groundwater interactions, sensitivity of karst aquifers to environmental stresses, water quality, groundwater contaminations, and field methods that are applied in groundwater studies. Weekend field trip(s) required.
- GEOL 3250 Micropaleontology** 2-2-3
Prerequisites: GEOL 1122K, GEOL 3210, or consent of instructor. The classification, stratigraphic relationships, and methods of study of microfossils with emphasis on the stratigraphically important groups.
- GEOL 3300 An Introduction to Process Geomorphology** 3-3-4
Also listed as GEOG 3300. Prerequisite: GEOL 1121, or GEOG 1112 and GEOG 1113. An introduction to process geomorphology examining landforms and their formative processes. Topics include weathering and slope, fluvial, coastal, aeolian, glacial and periglacial processes, and the application of soils to geomorphology. This course makes use of some mathematical equations. Field trip required.
- GEOL 3330 Geology, Hydrogeology, and Environmental Issues in Georgia** 3-0-3
Also listed as GEOG 3330. Prerequisite: GEOL 1121K. An overview of the geologic framework of Georgia and surrounding states, with emphasis on topical hydrogeologic and environmental issues that impact Georgia's environment. Students receive the appropriate geologic background necessary for careers that address environmental issues in the southeastern United States. One or more field trips to locations in the area will be included.
- GEOL 3410 Structural Geology** 2-2-3
Prerequisites: GEOL 1121K and GEOL 1122K; MAT 1112 or equivalent. Structural features of rocks, such as folds, faults, joints, cleavage, and primary structures, including their origin, classification, analyses and economic relationships. A study of tectonic plate motion is included. Laboratory work includes depth and thickness problems, structure sections, and structure contour maps.
- GEOL 3450 Field Methods in Geology** 2-4-4
Prerequisites: Sophomore standing, GEOL 1121K and GEOL 1122K, and consent of instructor. An introduction to the basic tools and techniques used in preparation of topographic and geologic maps, and profiles and cross-sections. Includes uses of plane table, alidade, Brunton compass, and aerial photographs.
- GEOL 3500 Principles of Geochemistry** 3-2-4
Prerequisites: GEOL 1121K and CHEM 1151K, or consent of the instructor. The application of chemical principles to study of geological and environmental processes. Course emphasis is on understanding processes that influence the chemistry of water, sediment, and soil. Specific topics include aqueous solutions, thermodynamics, mineral-water equilibria, oxidation-reduction reactions, and radiogenic and stable isotopes. Laboratory component of the course is field-based.
- GEOL 3510 Environmental Issues in Economic Geology** 3-0-3
Prerequisite: GEOL 1121K. An introduction to the concepts and practice of economic geology, with emphasis on the environmental impact of resource exploitation focusing on the resource industries that exist in Georgia and surrounding states. Topics include traditional metals-based economic geology, industrial minerals, and energy-based resources. One or more field trips to locations in the area will be included.

- GEOL 3710 Environmental Soil Science** 3-3-4
Also listed as GEOG 3710. Prerequisites: CHEM 1211K; GEOG 1113K or GEOL 1121K. Soil properties, distribution and classification, factors of soil formation, and the relationships among soils, geomorphology, and the environment, stressing analysis and use of soils and soil databases for proper urban, agricultural, and environmental land use.
- GEOL 4110 Principles of Stratigraphy** 3-0-3
Prerequisites: GEOL 1121K and GEOL 1122K. Corequisite: GEOL 3410. The interrelationships of stratigraphy, sedimentation, and paleogeography; methods in stratigraphy and correlation.
- GEOL 4900 Special Topics in Geology** 1-0-1 to 4-4-6
Prerequisite: GEOL 1121K and GEOL 1122K, or equivalent, and consent of instructor. Topics to be assigned by instructor; may be taken more than once if topics are different; up to a total of 6 credit hours.
- GEOL 4950 Directed Studies in Geology** 1-0-1 to 4-4-6
Prerequisites: GEOL 1121K and GEOL 1122K; Junior standing; and permission of advisor, instructor, and Department Head. Study of subjects not normally found in established courses offered by this department; may also allow students to explore in more detail and/or depth subjects covered by this department, up to a maximum of 6 credit hours.

GRMN:GERMAN

- GRMN 1001 Beginning German Language and Introduction to German Culture, I** 3-0-3
 Emphasis on the development of proficiency and communicative competence at the novice level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness of various sociocultural aspects and the distinctiveness of certain cultural traditions. GRMN 1001 is not open for credit to students with two or more years of high school German or the equivalent.
- GRMN 1002 Beginning German Language and Introduction to German Culture, II** 3-0-3
Prerequisite: GRMN 1001 or the equivalent. A continuation of GRMN 1001, with emphasis on proficiency and communicative competence at the novice level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness of various sociocultural aspects and the distinctiveness of certain cultural traditions.
- GRMN 1111 Intensive German Language & German Culture** 3-0-3
Prerequisite: Two or more years of high school German or the equivalent. Emphasis on the development of proficiency and communicative competence at the novice level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness of various sociocultural aspects and the distinctiveness of certain cultural traditions. GRMN 1111 is a one-semester combination of GRMN 1001 and GRMN 1002. This course is designed for those students not fully prepared for the 1002 level. GRMN 1111 reviews the concepts presented in GRMN 1001 and advances the student through the material of GRMN 1002.
- GRMN 2001 Intermediate German Language and German Culture, I** 3-0-3
Prerequisite: GRMN 1002 or the equivalent. Emphasis on the development of proficiency and communicative competence at the intermediate level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness and understanding of various sociocultural aspects and the distinctiveness of certain cultural traditions.

- GRMN 2002 Intermediate German Language and German Culture, II** 3-0-3
Prerequisite: GRMN 2001 or the equivalent. A continuation of GRMN 2001, with emphasis on proficiency and communicative competence at the intermediate level in the four basic skills: speaking, listening, reading, and writing, as defined by the American Council on the Teaching of Foreign Languages Proficiency Guidelines. Awareness and understanding of various sociocultural aspects and the distinctiveness of certain cultural traditions.
- GRMN 3310 Intermediate Reading** 3-0-3
Prerequisite: GRMN 2002 or consent of instructor. The development of students' proficiency in spoken and written German. The readings will be based on material from contemporary sources, including prose, poetry, and theater.
- GRMN 3320 Intermediate Grammar and Composition** 3-0-3
Prerequisite: GRMN 2002 or consent of instructor. Continued study of the major difficulties of German grammar with practice in compositions.
- GRMN 3540 German Popular Literature** 3-0-3
Prerequisite: GRMN 3310 or consent of the instructor. Study of lyrical forms, such as the ballads and poems of selected major authors and the lyrics of the common people over several centuries. A study of prose forms of popular literature, such as fairy tales and contemporary children's books.
- GRMN 3551 German Culture and Civilization I** 3-0-3
Prerequisite: GRMN 3310 or 3320 or consent of the instructor. Study of geography, history, and educational and political systems in Germany, with attention given to music, art, and letters.
- GRMN 3552 German Culture and Civilization II** 3-0-3
Prerequisite: GRMN 3310 or 3320 or consent of the instructor. Study of current issues in Germany. Selected readings and discussion from the German press, radio and TV, and literary texts.
- GRMN 3560 Survey of German Poetry** 3-0-3
Prerequisite: GRMN 3310 or consent of the instructor. Study of representative poetry over the centuries with the focus on the development of content and form.
- GRMN 3570 Survey of 18th- and 19th-Century German Theater** 3-0-3
Prerequisite: GRMN 3310 or consent of the instructor. Study of selected plays in their entirety with emphasis on the social changes in German society.
- GRMN 3580 Contemporary Works in German–Language & Literature** 3-0-3
Prerequisite: GRMN 3310 or consent of the instructor. Study of selected works in their entirety with emphasis on current social concerns in the German-speaking world.
- GRMN 4410 Advanced Conversation** 3-0-3
Prerequisite: GRMN 2002 or consent of instructor. Intensive approach to spoken German based on everyday activities and occurrences.
- GRMN 4420 Questions of Gender in German-Language Texts** 3-0-3
Prerequisite: GRMN 3310 or consent of the instructor. Study of the works of women authors in the German-speaking world and of the treatment of gender in other texts.
- GRMN 4950 Directed Study** 3-0-3
Prerequisite: GRMN 3310 or consent of the instructor. Study in a special area of German literature or the German language not normally found in established courses offered by the department. The work is done under the supervision of a professor.
- GRMN 4960 Study Abroad Special Topics** 3-0-3
Consult the Department of Modern and Classical Languages regarding arrangements, requirements, and credit. May be repeated for a maximum of 9 hours if topics are different.