Engineering Technology

Electronics Engineering Technology, 
ELET = 0182

4720. Control Systems. 4 hours. (3;3) Classical control 
theory; block diagrams, applications of LaPlace transforms, 
stability criteria and feedback. Use of computer software to 
evaluate complex systems. Prerequisite(s): ELET 3700 and 
3750.

4770. High-Frequency Systems II. 4 hours. (3;3) Micro-
wave techniques and systems; measurements in the UHF 
spectrum, transmission lines, Smith charts, computer analysis 
and satellite communications. Prerequisite(s): ELET 3770.

4790. Senior Design. 2 hours. (1;3) Project teams specify, 
plan, design, implement, test and demonstrate an electronic 
product or process. Oral and written documentation required. 
Projects to be supplied by local industry whenever possible. 
Prerequisite(s): completion of all required electronics 
courses.

3 hours. Electric energy production and transmission, 
including AC generator construction and operation, power 
transformers, transmission lines, and load-flow analysis; 
system modeling and computer applications. Prerequisite(s): 
ELET 3960.

4950. Automatic Control Systems. 4 hours. (3;2) Math-
ematical modeling techniques to study the modern processing 
plant; stability and feedback concepts; computers in real-time 
control of processes. Prerequisite(s): ELET 3970.

5300. Embedded Controllers. 3 hours. (2;2) The study of 
the technical aspects of real-time software systems: software 
development methodologies, operating system and real-time 
kernel concepts.

5310. Industrial Process Controls. 3 hours. (2;2) Use of 
programmable controllers and microcomputers as controllers 
in industrial processes; topics include sensors and transduc-
ers, data acquisition, control devices, and the nature of digital 
control.

5320. Introduction to Telecommunications. 3 hours. 
An introduction to the technology, standards, systems, and 
practices of the telecommunications industry to include 
equipment, switched and dedicated communications lines, 
and voice and data communications.

5330. Instrumentation System Design. 3 hours. (2;2) 
The major objectives of this course are instrumentation 
design techniques, transducer selection, and interfacing 
control and measurement signals to the system. The use of 
graphical and structured programming techniques in the 
design of virtual instrument systems will constitute a 
significant portion of the course. Prerequisite(s): BS degree 
in Engineering Technology, Engineering, Physics or 
permission of the instructor.

5340. Digital Logic Design Techniques. 3 hours. (2:2) 
Study of the design, simulation and implementation of digital 
logic circuits including combinational and sequential logic, 
algorithmic state machines, hardware test techniques, 
software used in design, simulation, and an introduction to 
the use of VHDL programming language. Oral and written 
documentation required.

Engineering Technology – see Undergraduate 
Catalog

Engineering Technology, Master’s Courses, 
MSET = 0187

5010. Seminar in Engineering Technology. 3 hours. In-
depth examination of current theories, research, trends and 
processes of industry. Readings, individual study and 
research, information exchange, and guest lectures provide 
an understanding of selected industrial topics. May be 
repeated for credit.

5020. Industrial Research. 3 hours. A study of industrial 
analytical techniques used to develop new products and new 
technologies, including the use of engineering software for 
design purposes.

5030. Product Design and Development. 3 hours. A formal 
development of the process of designing a product, including 
ideas generation, engineering development, modeling and 
analysis, and project planning and management.

5060. Applied Project Analysis. 3 hours. This course uses 
technical tools to analyze project life cycles. Factors looked 
at include scheduling, budgeting, resource benefitting, and 
risk analysis. Applications to a technical team project. (Same 
as MGMT 5240.)

5130. Product Reliability and Quality. 3 hours. Processes 
and techniques of assuring the quality of industrial products; 
reliability and maintainability, sampling probability and 
statistical process control; quality control management.

5800-5810. Studies in Engineering Technology. 1-3 hours 
each. Organized classes specifically designed to accommo-
date the needs of students and the demands of program 
development that are not met by regular offerings. Short 
courses and workshops on specific topics, organized on a 
limited-offering basis, to be repeated only upon demand. 
May be repeated for credit.

5900-5910. Special Problems. 1-3 hours each. Open to 
graduate students who are capable of developing a program 
independently.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only 
with consent of department. 6 hours credit required. No credit 
assigned until thesis has been completed and filed with the 
grade dean. Continuous enrollment required once work 
on thesis has begun. May be repeated for credit.

General Technology – see Undergraduate 
Catalog
**Manufacturing Engineering Technology, MFET = 0186**

4190. Quality Assurance. 3 hours. Review of statistics and discussion of statistical process control (SPC). The study of quality management, including preproduction supplier, in-process and finished product quality; methods of statistical analysis and quality audits, costs and employee training. Prerequisite(s): MFET 2110, MSCI 3700, or consent of department.

4200. Engineering Cost Analysis. 2 hours. Principles and techniques for cost evaluation of engineering design including: labor, material and business accounting analysis; forecasting tools and techniques; operation, product, project and system estimating; and, contract considerations. Prerequisite(s): MFET 2110 and MGMT 3830.

4210. CAD/CAM System Operations. 3 hours. (2;3) CAD/CAM programming, compilation of generic tape files for N/C and CNC machine tools local N/C and CNC part programming and operational techniques, G codes and M codes. Prerequisite(s): MFET 2110, MFET 3240, CSCI 1110, completion of math and science requirements.

4230. CNC Programming and Operation. 4 hours. (3;3) Intermediate-level CAD/CAM techniques; local programming, program editing and operation of Computer Numerical Control machining and turning centers; and local programming, program editing and interfacing of machine-tending robot. Prerequisite(s): MFET 4190.

4250. Senior Manufacturing Design. 2 hours. (1;3) Project teams specify, plan, design, implement, test and demonstrate a manufacturing product or process. Oral and written documentation required. Projects to be supplied by local industry whenever possible. Prerequisite(s): completion of all required MFET courses or concurrent enrollment.

4510. Industrial Experiment Design. 3 hours. Fundamental concepts involved in the design and analysis of industrial experiments with major emphasis on electronic applications. Common statistical tools with application to engineering; statistical distributions; development and organization of parametric and nonparametric experiments to render statistically significant data; and data analysis methods and reporting techniques. Prerequisite(s): MSCI 3700 and MFET 4190.

5100. Nontraditional Manufacturing Processes. 3 hours. Analysis of selected contemporary and emerging manufacturing/production processes utilizing high-level automation, productivity-enhancing technologies and/or specialty technologies; emphasis on process structure, organization, economics and application within the industrial environment.

5110. Contemporary Manufacturing Materials. 3 hours. (2;2) Comprehensive overview of polymeric and inorganic composite materials with emphasis on characterization in terms of mechanical properties, material composition and configuration. Also addressed are existing and potential industrial applications and criteria for systematic selection.

5120. Computer-Integrated Manufacturing. 3 hours. Computerization in manufacturing/production from an integrated systems perspective; emphasis on selected contemporary and emerging applications such as design/ documentation, engineering analysis, process planning, machine tool programming, automated material handling and inspection, and factory networking.

**Mechanical Engineering Technology, MEET = 0184**

4050. Mechanical Design. 3 hours. (2;3) Elements, principles and graphic representation techniques of the design process. Design methodology and process in applied engineering design. Design problem identification, refinement and analysis in the development of machines. Prerequisite(s): completion of all 3000-level engineering technology courses.

4350. Heat Transfer Applications. 3 hours. Principles of energy transfer by heat; conduction, free and forced convection, radiation, condensation and boiling heat transfer; combined heat transfer; introduction to heat exchanger; simple numerical techniques and computer applications. Prerequisite(s): CHEM 1420, MATH 1720, PHYS 1710 and MFET 3240.

4470. Advanced Fluid Mechanics. 3 hours. Principles and applications of fluid mechanics, including compressible fluid flow, fluid transients, lubrication mechanics, and solution techniques for flow and heat transfer. Prerequisite(s): MEET 2520 and 3990, and MFET 3940.

4800. Senior Mechanical Project. 2 hours. (1;3) Selected professional level projects in mechanical engineering technology. Oral and written presentation required. Projects to be supplied by industry whenever possible. Prerequisite(s): completion of all required engineering technology courses or concurrent enrollment.

5280. Contemporary Design Methods. 3 hours. (2;2) Relationship of computer to applied engineering design; emphasis on computer systems and software, including existing and potential applications with reference to CAD, CAM and CIM.

**Microsystems Engineering Technology, MIET = 0185**

4520. Process Instrumentation. 3 hours. (2;3) Study of process instrumentation principles and their application. Analog, digital and hybrid instrumentation techniques are studied and applied in a laboratory setting. The principles of automatic testing, data acquisition, and data logging are surveyed. Prerequisite(s): ELET 1720, ELET 2720, PHYS 2220/40 and MIET 2530.

4540. Failure Analysis Techniques. 3 hours. (2;3) Study of the methods and procedures for the identification, quantification, and analysis of various failure modes in semiconductor materials, integrated circuits, packaging, and assembly systems. Actual cases are studied, and close interaction with local industries enables the student to understand specific defect avoidances in materials and assembly. Prerequisite(s): MFET 3510, MFET 3520, MIET 4520.

4550. Yield Enhancement. 3 hours. Study of the methods and procedures for increasing yields of semiconductor devices through the reduction of defects by the enhancement of manufacturing controls. Prerequisite(s): MFET 3520, MFET 4190, MIET 4540 (may be taken concurrently).
**Nuclear Engineering Technology, NUET = 0188**

4050. Nuclear Reactor Theory. 3 hours. A study of neutron transport theory and neutron diffusion mechanics as applied to nuclear fission and reactor core’s criticality analysis and behavior. Multi-region core configurations and group diffusion theory included. Prerequisite(s): MATH 1720 and PHYS 3010/3030. (Same as PHYS 4050.)

4850. Computational Methods for Nuclear Engineering Technology. 4 hours. (3:3) Computer design and analysis for nuclear reactors and shielding. Methodology and theory for codes representative of cross section preparation, criticality calculation, gamma ray shielding and dose estimation from air scattered radiation. Prerequisite(s): NUET 3930, CSCI 1110 or consent of department.

4880. Health Physics and Radiation Protection. 3 hours. (2:3) Study and analysis of current health physics issues, practices and implementation. Radiation protection guides for both external and internal exposure and the methodology for establishing guidelines are explored. Methods of evaluation of effectiveness, environmental sampling and protection methods for monitoring radiation are introduced. Prerequisite(s): PHYS 1710/1730; MATH 1720, or consent of department.

4930. Reactor Engineering Design and Operation. 4 hours. (3:2) Theory and practice of commercial nuclear reactor operation; includes neutron distribution in space and energy, design of conduction and convective heat transfer systems, and the design of reactor shielding. Prerequisite(s): NUET 3920 and PHYS 4050.

4970. Modern Power Plant Design and Operation. 3 hours. Study and analysis of modern power plant engineering and technology including fossil and nuclear fueled. Heat generated mechanical and electrical power operations with alternative energy resources. Prerequisite(s): MATH 1710/1720, and MEET 3990 or consent of department.

4990. Senior Design Project. 2 hours. (1:2) Solution of real-time engineering problems utilizing computer modeling or laboratory experimentation; includes formal written and oral presentations. Capstone course for nuclear concentration. Prerequisite(s): NUET 3930 and NUET 4050.

4170. Principles and Practices of Rhetoric. 3 hours. A study of the major rhetoricians from Aristotle to Kenneth Burke, organized on a historical basis; emphasis on uses of rhetorical techniques in student writing.

4180. Advanced Technical Writing. 3 hours. Practical application of technical-writing theory and style in industry, business and the sciences. Prerequisite(s): ENGL 2700 is recommended.

4190. Technical Editing. 3 hours. The editing of drafts of technical manuals and other technical reports; the design of technical reports. Experience in applying rules governing technical-writing style. Prerequisite(s): ENGL 2700 is recommended.

4250. Writing Technical Procedures and Manuals. 3 hours. The application of the principles of technical style to the writing of technical procedures and manuals. Intensive practice in writing technical procedures and manuals. Prerequisite(s): ENGL 4180 is recommended.

4290. World Drama. 3 hours. Comparative study of Greek, Latin, Spanish, French, Russian, Japanese, Indian and English masterpieces; drama as a reflection of changing ideologies, customs and dramatic conventions.

4300. Modern Drama. 3 hours. Comparative survey of drama from the late 19th century to the present, emphasizing the globalization and increasing multiculturalism of the genre. Playwrights studied may include Henrik Ibsen, Bernard Shaw, Bertolt Brecht, Jean Genet, Wole Soyinka, Amiri Baraka, Caryl Churchill, Athol Fugard, August Wilson and David Henry Hwang.

4400. American Fiction. 3 hours. Reading and analysis of American novels and short stories by Hawthorne, Melville, Twain, James, Faulkner, Hemingway, Welty and others.

4410. Chaucer. 3 hours. The Canterbury Tales and other works as a picture of medieval life and illustration of various literary types; the language of Chaucer and its development into modern English.

4420. Poetry. 3 hours. Methods of reading and analyzing poetry; techniques of explication. Includes poetry from a variety of cultures.

4430. Shakespeare, 3 hours. Representative comedies, histories and tragedies; survey of Shakespeare’s life; his relation to his predecessors and contemporaries.

4440. Milton. 3 hours. Prose and poetry of Milton; political and religious thought of his day; his relation to his predecessors and his legacy to later writers.

4470. British Drama. 3 hours. May be offered as a survey from the origins into the 20th century or as a study of any of the major periods in the survey: medieval, Renaissance, Restoration and modern. May be repeated for credit as topics vary.

4480. American Drama. 3 hours. Offered as a historical survey of American drama or as a study of major authors and schools. Authors might include O’Neill, Miller, Williams, Hansberry, Albee. May be repeated for credit as topics vary.
4500. British Fiction. 3 hours. Reading and analysis of British novels and short stories by Defoe, Austen, Fielding, Dickens, Lawrence, Burgess, Hardy and others.

4600. Continental European Fiction. 3 hours. Study and analysis of continental European novels and short stories in translation. Works by Tolstoy, Dostoevsky, Balzac, Flaubert, Chekhov, Zola and others.

4760. Specialized Expository Writing. 3 hours. The application of rhetorical, analytical and organizational principles to the writing of expository prose in specialized areas of study.

4920. Cooperative Education in English. 1-3 hours. Supervised work in a job directly related to the student’s major, professional field of study or career objective. Prerequisite(s): 12 semester hours credit in English; student must meet employer’s requirements and have consent of the department chair. May be repeated for credit.

4940. Special Seminar in Literature or Language. 1-3 hours. Study of a major author, topic or genre in literature or language that extends the scope of traditional offerings. May be repeated for credit as topics vary.

5000. Old English. 3 hours. A study of Old English grammar and phonology; the reading of selections from prose and poetry in West Saxon; a survey of the literature of the Old English period. Prerequisite(s): 12 semester hours in advanced English, including a course from Group D. See Undergraduate Catalog for Group D course listing.

5010. Beowulf. 3 hours. A study of Beowulf, its language and its place in the Germanic epic tradition; some attention to other heroic poetry. Prerequisite(s): ENGL 5000.

5030. Studies in Medieval Literature. 3 hours. A detailed study of the works of one or more of the major writers or literary genres of the medieval period in England, with a study of the major literary and social forces that helped to shape the cultural context of the period.

5100. Studies in British Literature of the Romantic Period. 3 hours. A detailed study of the works of one or more of the major Romantic poets, together with wide reading in the general literature of the period.

5140. Form and Theory: Poetry. 3 hours. Rhetorical criticism of poetry to show how poems achieve identification with the audience; emphasis on student mastery of critical analysis.

5145. Form and Theory: Prose. 3 hours. Rhetorical criticism of prose fiction to show how short stories and novels achieve effect.

5162. Creative Writing: Essay. 3 hours. A close analysis of the contemporary essay; writing of essays using rhetorical principles in conjunction with invention, humor and polemics.

5170. Rhetorical Theory. 3 hours. A consideration of rhetorical theory from the Greeks to modern times. Emphasis upon 20th-century advances and innovations. The relationship between literary criticism and rhetorical theory; persuasive techniques in literary discourse; the place of rhetorical theory in the teaching of writing.

5200. Studies in British Literature of the Victorian Period. 3 hours. A study of the works of one or more of the major British writers of the Victorian period and of the intellectual and philosophical interests of the time.

5250. Studies in British Literature of the Eighteenth Century. 3 hours. An appraisal of a significant group of writers or a literary genre of either the Restoration or the 18th century, together with attention to the historical, intellectual and social background.

5260. Studies in Nineteenth Century British Literature. 3 hours. A detailed survey of the works of the Romantic and Victorian periods, with a general consideration of social and intellectual interests of the time.

5400. Studies in Shakespeare. 3 hours. An intensive study of selected plays and a consideration of some of the literary problems connected with Shakespeare’s life and work.

5410. Studies in the British Renaissance. 1-4 hours. A study of the works of one or more major authors of the 16th and 17th centuries and of the intellectual, philosophical and religious life of the time.

5420. Creative Writing: Poetry. 3 hours. A study of the principles of poetic composition in traditional forms as well as free verse. Format includes lecture and workshop.

5490. Studies in the Contemporary British Novel. 3 hours. A detailed study of the writings of one or more major contemporary British novelists, with consideration of relevant social and intellectual interests of the time.

5500. Studies in American Literature from the Beginning to 1800. 3 hours. A survey of the works of major Colonial and Federalist American authors and a general consideration of the social and intellectual interests of the time.

5510. Studies in American Literature, 1800 to 1865. 3 hours. A detailed study of the writings of major authors and a general consideration of the social and intellectual interests of the time.

5520. Studies in American Literature, 1865 to 1914. 3 hours. A detailed study of the writings of major authors and a general consideration of the social and intellectual interests of the time.

5530. Studies in American Literature, 1914 to the Present. 3 hours. A detailed study of the writings of major authors and a general consideration of the social and intellectual interests of the time.

5540. Studies in Contemporary British Literature. 3 hours. A detailed study of the complete writings of one or more major contemporary British authors, with consideration of relevant social and intellectual interests of the time.

5550. Studies in the Teaching of Composition. 3 hours. Survey of current scholarly opinion concerning objectives and methods of instruction in written composition; supervised planning of the English curriculum, with special attention to problems related to teaching composition; development through practice of criteria for evaluating student composition. May be repeated for credit as topics vary. Either ENGL 5550 or ENTW 5550 is required for all new teaching fellows (offered every fall).
5560. Studies in the Teaching of Literature. 3 hours. Survey of current scholarly opinion concerning objectives and methods of teaching literature; supervised planning of the English curriculum, with special attention to problems related to the teaching of poetry, drama, prose fiction and prose non-fiction.

5570. Studies in the Teaching of the English Language. 3 hours. Survey of current scholarly opinion concerning objectives and methods of teaching grammar, vocabulary, semantics, usage and other aspects of language; supervised planning of the curriculum with special attention to problems related to the teaching of the English language in its spoken and written forms.

5600. Studies in European Literature. 3 hours. Study of a major period or movement in continental European literature; extensive reading in literature in translation and research in literary history and development, with emphasis upon relations to British and American literature.

5630. Semiotics. 3 hours. An introduction to the study of signs as signifiers of meaning in various genres.

5700. Classical Background of English and American Literature. 3 hours. A study of Greek and Latin literature in translation, with emphasis upon works that have strongly influenced English and American literature; research in literary and linguistic influences.

5710. Studies in Folklore. 3 hours. An introduction to the types of folklore, with emphasis upon cultural phenomena as reflected in tales, legends, proverbs and folk songs, and upon folklore motifs as bases for formal literature. Techniques of collecting, comparing and analyzing folklore.

5750. Bibliography and Methods of Research in Literature. 3 hours. An examination of the basic materials available for research in British and American literature; study of the conventions of presentation of material in scholarly writing; consideration of types of bibliography, problems in textual analysis and criticism, and methods of research in literary history and literary criticism.

5760. Scholarly and Critical Writing. 3 hours. The reading and close analysis of a variety of types of contemporary literary criticism with the goals of determining the major elements of form and content and of improving the student’s ability to write theses, dissertations and publishable articles.

5800. Studies in Literary Genres. 3 hours. A study of the historical development of one or more literary genres in American, English, continental or world literature, with attention to major practitioners in the genre and to the historical and literary influences on the form.

5810. Studies in Literary Criticism. 3 hours. A study of one or more major strains of critical emphasis, with special attention to those that have been influential in the 20th century.

5820. Creative Writing: Prose Fiction. 3 hours. A study of the principles of prose fiction as exemplified in published and unpublished works. Emphasis on writing for specific subgenres and methods of preparation and submission of work. Workshop format is employed.

5825. Screenwriting. 3 hours. A study of the principles of dramatic composition as applied to writing for the motion picture or television screen.

5890. Studies in the American Novel, 1914 to the Present. 3 hours. A detailed study of the writings of one or more major American novelists and a general consideration of the social and intellectual interests of the time.

5900-5910. Special Problems. 1-3 hours each. Conference course open to advanced students capable of doing independent research under the direction of the instructor. Registration permitted only when other graduate courses are not available and only upon the recommendation of the instructor and the consent of the department chair. A maximum of 3 semester hours credit is allowed for each course.

5920-5930. Research Problems in Lieu of Thesis (Original Scholarly Papers). 6 hours each. (0:0:6) Courses each require the composition of an original scholarly paper in the field of linguistics and/or English as a second language. Prerequisite(s): consent of department.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

5960-5970. English Institute. 1-6 hours each. For students accepted by the university as participants in special institute courses. May be repeated for credit but not to exceed 6 hours in each course.

6020. Seminar in Old and Middle English Language or Literature. 3 hours. A study in-depth of a single writer, a group of writers, a literary genre or a literary fashion of the period; consideration of the cultural context of the literary work.

6200. Seminar in British Literature, 1500-1660. 3 hours. A study in depth of a single writer, a group of writers, a literary genre or a literary fashion of the period; consideration of the cultural context of the literary work.

6250. Seminar in British Literature, 1660-1780. 3 hours. A study in depth of a single writer, a group of writers, a literary genre or a literary fashion of the period; consideration of the cultural context of the literary work.

6250. Seminar in British Literature, 1660-1780. 3 hours. A study in depth of a single writer, a group of writers, a literary genre or a literary fashion of the period; consideration of the cultural context of the literary work.

6410. Seminar in British Literature, 1780 to the Present. 3 hours. A study in depth of a single writer, a group of writers, a literary genre or a literary fashion of the period; consideration of the cultural context of the literary work.

6500. Seminar in American Literature to 1865. 3 hours. A study in depth of a single writer, a group of writers, a literary genre or a literary fashion of the period; consideration of the cultural context of the literary work.

6530. Seminar in American Literature, 1865 to the Present. 3 hours. A study in depth of a single writer, a group of writers, a literary genre or a literary fashion of the period; consideration of the cultural context of the literary work.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>6590</td>
<td>Seminar in the Novel</td>
<td>3</td>
<td>A study in depth of a single novelist, a group of novelists, a literary genre or literary fashion of the period; consideration of the cultural context of the literary work.</td>
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<tr>
<td>6900-6910</td>
<td>Special Problems</td>
<td>1-3</td>
<td>One course open to doctoral candidates doing independent research under the direction of the instructor.</td>
</tr>
<tr>
<td>6941, 2, 4</td>
<td>Directed Research</td>
<td>Variable</td>
<td>Doctoral research of an independent nature. May be repeated for credit.</td>
</tr>
<tr>
<td>6950</td>
<td>Doctoral Dissertation</td>
<td>3, 6 or 9</td>
<td>To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.</td>
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**Linguistics, LING = 0129**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
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<tbody>
<tr>
<td>4010</td>
<td>English Language in America</td>
<td>3</td>
<td>Linguistic analysis of historical and contemporary American English; regional and social variations. Prerequisite(s): ENGL 3060 or four semesters of a foreign language.</td>
</tr>
<tr>
<td>4020</td>
<td>Structure of Modern English</td>
<td>3</td>
<td>Modern English grammars, morphology and syntax; principles of analysis and various theories of English structure; relationship between linguistic structure, rhetorical pattern and literary style. Prerequisite(s): ENGL 3060 or four semesters of a foreign language.</td>
</tr>
<tr>
<td>4030</td>
<td>Acquisition of English as a Second Language</td>
<td>3</td>
<td>Study of language acquisition, development, production and comprehension focusing on the application of current research findings to the context of learning and teaching English as a second language. Prerequisite(s): ENGL 3060 or four semesters of a foreign language.</td>
</tr>
<tr>
<td>4040</td>
<td>General Linguistics</td>
<td>3</td>
<td>General introduction to the core systems of the languages of the world focusing on phonetics, phonology, morphology, syntax and semantics. Prerequisite(s): ENGL 3060 or four semesters of a foreign language.</td>
</tr>
<tr>
<td>4070</td>
<td>History of the English Language</td>
<td>3</td>
<td>The evolution of Modern English from Indo-European through Old English and Middle English. Prerequisite(s): ENGL 3060 or four semesters of a foreign language.</td>
</tr>
<tr>
<td>4080</td>
<td>Teaching English as a Second Language</td>
<td>3</td>
<td>Theory and method of teaching English as a second language. Study of major approaches with specific attention to methods of teaching, listening, speaking, reading and writing. Prerequisite(s): 12 hours of English and one Group D course. See Undergraduate Catalog for Group D course listing.</td>
</tr>
<tr>
<td>5020</td>
<td>Studies in Historical Linguistics</td>
<td>3</td>
<td>Introduction to the study of language as it changes over time. Prerequisite(s): ENGL 4040 or LING 5040 or consent of instructor.</td>
</tr>
<tr>
<td>5040</td>
<td>Principles of Linguistics</td>
<td>3</td>
<td>General introduction to the core systems of the languages of the world, focusing on phonetics, phonology, morphology, syntax, and semantics.</td>
</tr>
<tr>
<td>5060</td>
<td>Second Language Acquisition</td>
<td>3</td>
<td>Covers a broad range of issues concerning the acquisition of second languages. Topics include L1-L2 differences, child-adult L2 differences, the teachability of grammar and models of L2 acquisition. Prerequisite(s): ENGL 5040 or LING 5040 or consent of instructor.</td>
</tr>
<tr>
<td>5070</td>
<td>Bibliography and Methods of Research in Linguistics/ESL</td>
<td>3</td>
<td>Introduces new graduate students to the academic tools required for research in linguistics or ESL. Areas of focus include bibliographic reference and indexing sources, the structure of experimental writing, research design, corpus-based linguistic analysis, and statistical analysis. Should be taken during first semester of study if possible.</td>
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<tr>
<td>5080</td>
<td>Teaching English as a Second Language</td>
<td>3</td>
<td>Current pedagogical theory affecting the teaching of English as a second language. Both theoretical and applied approaches are considered.</td>
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<tr>
<td>5090</td>
<td>Pedagogical English Grammar</td>
<td>3</td>
<td>Thorough study of the basics of English grammar (morphology and syntax) analyzed from traditional, descriptive and theoretical points of view. Emphasis on pedagogical problems.</td>
</tr>
<tr>
<td>5300</td>
<td>Phonology</td>
<td>3</td>
<td>Detailed study of phonology in terms of contemporary theories of linguistic analysis. Relates sound systems to phonetic universals and to other components of a complete grammar. Prerequisite(s): ENGL 4040 and LING 5040, or consent of instructor.</td>
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<tr>
<td>5310</td>
<td>Syntax</td>
<td>3</td>
<td>Detailed study of the morpho-syntax and semantics of English and selected non-Indo-European languages in terms of contemporary linguistic theory. Prerequisite(s): ENGL 4040 and LING 5040, or consent of instructor.</td>
</tr>
<tr>
<td>5320</td>
<td>Studies in Applied Linguistics</td>
<td>3</td>
<td>Application of the principles and findings of linguistic science to the solution of selected practical problems, particularly those related to pedagogy, such as linguistics and language teaching. ESL testing and research methodology. May be repeated for credit as topics vary. Prerequisite(s): consent of instructor.</td>
</tr>
<tr>
<td>5330</td>
<td>Sociolinguistics</td>
<td>3</td>
<td>Study of the relationship of language and society as shown in the following areas: the ethnography of speaking (analysis of discourse), language variation and social class, pidgin and creole languages, diglossia and multilingualism, ethnic varieties, language and sex, language policy and planning. Prerequisite(s): ENGL 4040 or LING 5040 or consent of instructor. Recommended fourth course for ESL endorsement. Offered two times every year.</td>
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<td>5340</td>
<td>Practicum in Teaching English as a Second Language</td>
<td>3</td>
<td>Practical experience in the design and implementation of ESL instruction, including actual practice in the teaching of English to speakers of other languages. Prerequisite(s): ENGL 4080 or LING 5080 or consent of instructor.</td>
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5380. Language Typology and Universals. 3 hours. Data-oriented comparison and classification of the languages of the world according to their morphological and syntactic characteristics (role relations, word order, causatives, relative clauses, comparison, etc.) Emphasis is on working through real data from many languages. Prerequisite(s): ENGL 4040 or LING 5040 or consent of instructor.

5360. Studies in Descriptive Linguistics. 3 hours. Intensive study of a selected topic on linguistic structure, such as psycholinguistics, sociolinguistics or typology. Prerequisite(s): or consent of instructor. May be repeated for credit as topics vary.

5370. Linguistics and Composition. 3 hours. A linguistic and psycholinguistic analysis of the process and product of writing, including discourse analysis, the process of reading, the cognitive processes of writing and sociolinguistic variables.

5380. Linguistic Field Methods. 3 hours. Experience in the discovery of the phonology, morphology and syntax of a language through techniques of elicitation and analysis of data. Prerequisite(s): ENGL 4040 or LING 5040 or consent of instructor. May be repeated for credit.

5390. Psycholinguistics. 3 hours. Deals with a variety of formal cognitive mechanisms that are relevant to the knowledge and use of natural languages. Primary emphasis is on the modular view of the mind and its consequences for both L1 and L2 language acquisition. Prerequisite(s): ENGL 4040 or LING 5040 or consent of instructor.

5590. Linguistics and Literature. 3 hours. A study of theories and methods of interpretation in terms of contemporary linguistics. The course provides practical training in the application of linguistic methods to literary analysis. May be repeated for credit as topics vary.

5900-5910. Special Problems. 1-3 hours each. Conference course open to advanced students capable of doing independent research under the direction of the instructor. Registration permitted only when other graduate courses are not available and only upon the recommendation of the instructor and the consent of the department chair. A maximum of 3 semester hours credit is allowed for each course.

5920-5930. Research Problems in Lieu of Thesis (Original Scholarly Papers). 6 hours each. (0:0:6) Courses each require the composition of an original scholarly paper in the field of linguistics and/or English as a second language. Prerequisite(s): consent of department.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

5180. Professional Writing. 3 hours. The application of the principles of technical style to writing in specialized fields. Topics of special emphasis include writing in the fields of scientific, report and legal writing. May be repeated for credit as topics vary.

5185. Principles of Technical Writing. 3 hours. Practical application of technical and professional writing in industry, business and the sciences, using the workshop approach.

5190. Style and Technical Writing. 3 hours. A study of the principles of technical style with intensive practice in writing and analyzing technical prose.

5191. Technical Writing and the Computer. 3 hours. A study of the role of the computer in technical writing environments, with emphasis on writing software documentation. Analysis of the social, psychological, and behavioral impact of computers in workplace settings; intensive study and practice in designing and writing various types of software documentation.


5550. Studies in the Teaching of Technical Composition. 3 hours. Survey of current scholarly opinion concerning objectives and methods of instruction in written technical composition; supervised planning of the English curriculum, with special attention to problems related to teaching technical composition; development through criteria for evaluating student composition. May be repeated for credit as topics vary. Either ENTW 5550 or ENGL 5550 is required for all new teaching fellows (offered every fall).

5580. Theories in Composition. 3 hours. A study of composition theories, leading to the development of research techniques and compositional skills.

5640. Practicum in Technical Writing. 6 hours. An extensive independent writing project addressing a problem in business or industry. Students may develop the project while working on an internship. Prerequisite(s): completion of the required and elective courses and the minor.

5740. Research in Technical Writing. 3 hours. An examination of the basic materials available for research in technical writing; analysis and application of qualitative and quantitative methods of research in technical writing; evaluation of the application of research results within professional workplace settings; and practice in the conventions of reporting research results for publication.

5900-5910. Special Problems. 1-3 hours each. Conference course open to advanced students capable of doing independent research under the direction of the instructor. Registration permitted only when other graduate courses are not available and only upon the recommendation of the instructor and the consent of the department chair. A maximum of 3 semester hours credit is allowed for each course.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

Technical Writing, ENTW = 0195
1.5 hours. Introduction to the legal environment of the business world.

4440. Real Estate Law and Contracts. 3 hours. Study of the legal principles governing real estate transactions with an emphasis on promulgated contracts. Topics may include contract law, estates in land, types of ownership, deeds, mortgages, title insurance, agency, and homestead.

4600. Current Topics in Business Law. 3 hours. Designed to provide information on the legal environment of specified functional areas as required by needs of functional areas and/or changes in the law. May be repeated for credit as topics vary.

4770. Advanced Real Estate Contracts. 3 hours. In-depth study of legal principles governing real estate transactions with an emphasis on promulgated contracts. Topics may include contract law, estates in land, types of ownership, deeds, mortgages, title insurance, agency, and homestead.

5400. Law for Accountants and Managers. 3 hours. A study of and practice in the technique of analyzing law problems and cases affecting accountants and managers. Topics include legal responsibility, business organizations, contracts, debtor-creditor relations, government regulation, uniform commercial code and property rights.

5600. Current Topics in Law. 3 hours. Designed to provide information on the legal environment of specified functional areas as required by needs of functional areas and/or changes in the law. May be repeated for credit as topics vary.

5760. Insurance Law. 3 hours. Designed to lead the student into a study of fundamental legal doctrines and concepts applicable to the field of insurance. Includes contract law, parties to the contract, insurable interest, agency powers, waiver and estoppel, warranties, representations and concealments, the rights of the beneficiary, and provisions controlling and limiting loss. Pertinent to the life-health and property-liability insurance areas.

6790. Legal Aspects of Higher Education. 3 hours. Legal aspects and issues affecting institutions of higher learning and their administrations, faculties and students. Analyses of decisions rendered by the federal and state courts concerning procedural and substantive due process, civil rights, and the operation and function of higher education. (Same as EDHE 6790.)

Finance, FINA = 0330

4200. Investments. 3 hours. First course for the individual investor. Idea of investment value; necessary prerequisites for an investment program; policies; economic and industry factors; introduction to security analysis and valuation; operation of security markets; security laws. Prerequisite(s): FINA 3770 and ACCT 2020 and 2030 or equivalent with grades of C or better.

4210. Special Topics in Investments. 3 hours. Review of markets; determinants of interest rates and bond prices; forecasting of stock prices, including technical, psychological, cyclical and monetary indicators; trading strategy and tactics; market imperfections; options; futures markets; portfolio theory; and other relevant topics. Prerequisite(s): FINA 4200 with a grade of C or better or consent of department.

4300. Liquidity and Working Capital Management. 3 hours. Analyzing issues related to corporate liquidity problems and solutions related to the management of short-term assets and liabilities. Prerequisite(s): FINA 3770 with a grade of C or better.
4310. Valuation and Financial Decisions. 3 hours.
This course develops a conceptual valuation framework for
investment, capital structure and dividend decisions. Each is
examined for its impact on the risk return characteristics
of the firm. In addition, long-term financing decisions are
discussed. Prerequisite(s): FINA 3770 with a grade of C or
better.

4400. Financial Markets and Institutions. 3 hours. Studies
in the operations, mechanics and structure of the U.S.
financial system. Topics include commercial banking, non-
bank financial institutions, money and capital markets, the
impact of monetary policy on financial institutions and
markets, and an introduction to the international financial
system. Prerequisite(s): FINA 3770 with a grade of C or
better.

4410. Management of Financial Institutions. 3 hours.
Studies in the management of financial institutions. Case
problems and computer simulation models are used to
improve the student’s decision making ability.
Prerequisite(s): FINA 4400 or concurrent enrollment.

4500. International Finance. 3 hours. International and
regional financial institutions and arrangements; balance
of payments, theory, adjustments and impact on world trade;
role of commercial and central banks in financing interna-
tional flow; financing exports and imports; the instruments
and markets of foreign exchange; determination of exchange
rates. Prerequisite(s): FINA 3770 with a grade of C or
better.

4610. Comprehensive Financial Planning. 3 hours.
Designed to prepare students to assist individuals in their
financial planning and strategy, including analysis of needs,
insurance and investment programs, tax planning and
shelters, trusts, tangibles, and retirement planning. Study
includes readings and analysis of cases. Prerequisite(s):
FINA 4200 and INSU 2500 or 4200 with grades of C or
better.

4800. Internship. 3 hours. Supervised work in a job relative
to student’s career objective. Prerequisite(s): student must
meet the employer’s requirements and have consent of the
department chair. Pass/no pass only.

5170. Financial Management. 3 hours. Tools and
techniques used and proposed in corporate financial
management. Analysis of the investment and financing
decisions and the environment in which such decisions are
made are covered in readings, case problems and class
discussion. Prerequisite(s): ACCT 5020. Students with
15 credit hours of approved undergraduate finance courses
may elect to substitute another 5000-level finance course
for this course.

5210. Investment Analysis and Management. 3 hours.
Economic and industry studies, company analysis, selection
of senior securities, theory and application of common stock
valuation models, security markets and timing, portfolio
management, options and futures markets. Prerequisite(s):
FINA 5170; ECON 1100 or 5000 or equivalent; MSCI 5180
or equivalent; ACCT 2030 or 5020 or equivalent; MATH
1190 or equivalent, or consent of department.

3 hours. Theory, valuation and analysis of derivative
securities; the use of options, futures and swaps in risk
management; current applications to financial engineering
and innovation. Prerequisite(s): FINA 5170 and 5210; ECON
1100 or 5000 or equivalent; MSCI 5180 or equivalent; ACCT
2030 or 5020 or equivalent; MATH 1190 or equivalent.

5310. Advanced Topics in Financial Management.
3 hours. Introduces the student to the use of financial
decision models. Also focuses on the application of advanced
theoretical models and provides an understanding of the
interaction of financial decisions. Prerequisite(s): FINA
5170; ECON 1100 or 5000 or equivalent; MSCI 5180 or
equivalent; ACCT 2030 or 5020 or equivalent; MATH 1190
or equivalent.

5400. Financial Markets and Institutions. 3 hours. The
determination of interest rates, their term structure, and the
relationship with inflation. Management of interest rate risk.
Financial instruments and their characteristics. Monetary
policy, the Federal Reserve System, and regulation.
Introduction to the international financial system.
Prerequisite(s): FINA 5170; ECON 1100 or 5000 or
equivalent; MSCI 5180 or equivalent; ACCT 2030 or 5020
or equivalent; MATH 1190 or equivalent.

3 hours. Current problems and issues in the management of
financial institutions are covered in readings, case problems
and computer simulation models. Prerequisite(s): FINA
5400.

5500. International Financial Management. 3 hours.
Analyses of the balance of payments and its impact on
domestic economies and currencies. Theories of financing
foreign trade and investments. Foreign exchange markets
and exchange rate behavior in theory and practice. Assessing
exposure to the foreign exchange risk and the use of hedging
tools and techniques. Prerequisite(s): FINA 5170; ECON
1100 or 5000 or equivalent; MSCI 5180 or equivalent; ACCT
2030 or 5020 or equivalent; MATH 1190 or equivalent.

5510. Theory of Finance. 3 hours. Advanced topics in the
theory of finance. Topics include decision-making under
uncertainty; equilibrium pricing models, capital structure
teorgy; agency theory and the market for corporate control;
signaling models; the pricing of contingent claims; current
developments and selected readings in the finance literature.
Prerequisite(s): FINA 5310 or equivalent; knowledge of
differential and integral calculus, matrix algebra, and
intermediate microeconomics are recommended.

5650. Contemporary Issues in Finance. 3 hours. Current
topics as selected by the instructor. May include cases and/or
lecture format. May be repeated for credit. Prerequisite(s):
consent of instructor.

5700. Integrative Capstone Course in Finance. 3 hours.
Integrative cases and/or theory as selected by the instructor.
Required for MS finance students. Open to MBA students,
but all students must meet prerequisites. Prerequisite(s):
FINA 5210, 5310, 5400 and 5500.

5900-5910. Special Problems. 1-3 hours each. Open to
graduate students who are capable of developing a problem
independently. Problem chosen by the student and developed
through conferences and activities under the direction of the
instructor. Prerequisite(s): approved applications for special
problems/independent research/dissertation credit must be
submitted to the COBA Student Advising Office prior to
registration.
6010. Seminar in Business Administration. 3 hours. Covers one or more special fields. Prerequisite(s): approval of the PhD program adviser in the department. May be repeated for credit, and two or more sections may be taken concurrently.

6100. The Theory of Financial Decisions. 3 hours. Examines the theoretical underpinnings of financial decision making. Explores valuation and the impact on firm value of the investment, financing and dividend decisions under conditions of certainty and uncertainty in both perfect and imperfect markets. Prerequisite(s): FINA 5310 and doctoral standing, or consent of department.

6110. Special Topics in Financial Theory. 3 hours. Emphasizes current issues in theoretical finance. Students explore both current and classic literature and engage in individual research on the issues under consideration. Prerequisite(s): FINA 6100.

6900-6910. Special Problems. 1-3 hours each. Research by doctoral students in fields of special interest. Includes project research studies and intensive reading programs, accompanied by conferences with professors in fields involved. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.

6940. Individual Research. 1-12 hours. Individual research for the doctoral candidate. May be repeated for credit. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.

Insurance, INSU = 0335

4200. Life Insurance. 3 hours. Economic basis, fundamental principles, types of life insurance and annuity products, pertinent legal concepts, contract provisions, taxation of life insurance and annuity products, nature and operations of companies, and financial statements of life insurers; personal and business uses of life insurance and annuity products.

4300. Property and Liability Insurance I. 3 hours. Property and liability exposures to loss, and methods available to treat them; standard fire policy, consequential loss coverage, liability policies and worker’s compensation; regulation, claims payment process, underwriting, rate making and reinsurance.

4310. Property and Liability Insurance II. 3 hours. Advanced topics, including ocean marine insurance, inland marine insurance, boiler and machinery insurance, fidelity and surety bonding, crime insurance, credit insurance, and selected commercial multiple-line coverages; insurer operations, including marketing, investments and profitability determinations.

4400. Employee Benefit Programs. 3 hours. Reasons for employee benefit programs; group life, medical expense and disability income insurance programs; health maintenance organizations; pension programs and profit-sharing plans; tax considerations and government regulations.

4500. Estate Planning. 3 hours. Planning process and selected techniques for efficient disposition and administration of property interests; various tools, including wills, trusts, life insurance settlement options and powers of appointment; pertinent income, estate and gift tax provisions. Prerequisite(s): ACCT 2020 and 2030 and BLAW 3430; or equivalent experience.

4600. Risk Management. 3 hours. Study of financial effects of pure risk on businesses and not-for-profit institutions; policy, goals, objectives, organization of effort, identification and evaluation of risk; selection of risk treatment/financing tools; implementation and review of tools used; probability analyses of data and financial evaluation of alternative tools.

4800. Internship. 3 hours. Supervised work in a job related to student’s career objective. Prerequisite(s): student must meet the employer’s requirements and have consent of the department chair. Pass/no pass only.

5730. Risk Management Techniques for the Business Executive. 3 hours. Designed to acquaint the student with the nature of risk and the economic concept of risk; types of risk and techniques for the discovery, evaluation and treatment of pure risk in the business situation. Examination of the nature of insurance and other risk treatment techniques; the role of the risk manager within the firm; industrial accident prevention as related to the risk manager’s role; types of loss and their financial impact on the costs of loss prevention versus its benefits; the risk manager’s relationship with insurers; and current problem areas for risk management today, as time allows.

5770. Employee Benefits and Other Business Uses of Life and Health Insurance. 3 hours. Buy-sell agreements for businesses and life/disability income insurance funding, tax implications, group life, medical expense and disability income insurance plans, health maintenance organizations, pension plans, profit sharing plans, individual retirement accounts, Keogh plans, tax implications and regulation.

5780. Financial and Estate Planning. 3 hours. Designed to prepare students to assist individuals with their financial and estate planning. Study of appropriate strategies, the planning process and pertinent statutes as well as selected tools and techniques utilized in the acquisition, conservation, management and disposition of property. Covers insurance and investment programs, buy-sell agreements, tax planning and shelters, wills, trusts, powers of appointment and other related topics in conjunction with applicable income, gift and estate tax provisions.

5900. Special Problems. 1-3 hours. Open to graduate students who are capable of developing a problem independently. Problem chosen by the student and developed through conferences and activities under the direction of the instructor. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.
Real Estate, REAL = 0340

4000. Real Estate Finance. 3 hours. Examination of the process and methods of financing both residential and commercial properties. Primary focus is on the lender’s perspective in mortgage loan analysis. Prerequisite(s): REAL 2100 and FINA 3770, or consent of department.

4200. Real Estate Asset Management. 3 hours. Examination of the process and methods of managing real assets. Topics include property leasing, marketing, maintenance, personal supervision, taxation and cash-flow analysis. Prerequisite(s): REAL 2100 or consent of department.

4300. Real Estate Investments. 3 hours. Analysis of real estate investments during the origination, operation and termination phases. Primary emphasis is on financial feasibility and cash-flow analysis. Prerequisite(s): REAL 2100 and FINA 3770, or consent of department.

4400. Real Estate Valuation. 3 hours. Theory and methods of residential and income property appraisal. Topics include real estate market analysis, highest and best use analysis, and capitalization techniques. Income property valuation techniques are emphasized. Prerequisite(s): REAL 2100 and FINA 3770, or consent of department.

4800. Internship. 3 hours. Supervised work in a job related to student’s career objective. Prerequisite(s): student must have 2.8 overall GPA, meet employer’s requirements and have consent of department chair. Pass/no pass only.

5350. Introduction to Real Estate and Investment Analysis. 3 hours. An advanced survey course on real estate, including topics in urban land economics, appraisal, law, finance, taxes and investments. Emphasis is on investment analysis of commercial property.

5440. Advanced Real Estate Finance and Analysis. 3 hours. Emphasis on the financial management of real estate assets in an institutional setting with special attention given to evaluation and control of risk and return trade-off by the decision maker. Additional topics to be included are real estate finance instruments, financing techniques, real estate financing institutions and markets. Prerequisite(s): REAL 5350 or consent of department.

5750. Real Estate Market and Feasibility Analysis. 3 hours. Analysis of financial and non-financial factors influencing the investment feasibility of income-producing property. Prerequisite(s): REAL 5350 or consent of department.

5760. Advanced Real Estate Investments and Analysis. 3 hours. Analysis of commercial real estate investments. Focus is on the theory and methods of investment analysis in respect to tax and financial consequences. Prerequisite(s): REAL 5350 or consent of department.

5780. Seminar in Real Estate Research. 3 hours. Reading and analysis of current real estate literature and research. Topics vary. Prerequisite(s): REAL 5350, 5440 and 5760.

5900. Special Problems. 1-3 hours. Open to graduate students who are capable of developing a problem independently. Problem chosen by the student and developed through conferences and activities under the direction of the instructor. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.

Foreign Languages and Literatures

French, FREN = 0131

4030. Survey of French Literature I. 3 hours. French Literature to 1600. Readings, lectures, discussions and term projects. Prerequisite(s): 6 hours of advanced French, at least 3 hours of which must be FREN 3040 or FREN 3050, or departmental equivalent.

4040. Survey of French Literature II. 3 hours. French Literature from 1600 to 1800. Readings, lectures, discussions and term projects. Prerequisite(s): 6 hours of advanced French, at least 3 hours of which must be FREN 3040 or FREN 3050, or departmental equivalent.

4050. Survey of French Literature III. 3 hours. French Literature since 1800. Readings, lectures, discussions and term projects. Prerequisite(s): 6 hours of advanced French, at least 3 hours of which must be FREN 3040 or FREN 3050, or departmental equivalent.

4070. French Culture and Literature through Film. 3 hours. The thematic and chronological study of French literature and culture through films. Relations between literature/culture and film are explored. Prerequisite(s): FREN 3040 or 3050.

4080. Business French. 3 hours. Students become familiar with business terminology in French. They also learn to function in a French business environment, including writing business letters, conducting telephone conversations and business meetings. This course serves as preparation for the exam leading to the Certificat Pratique of the Paris Chamber of Commerce and Industry. Prerequisite(s): 6 hours of advanced French.

4100. The Nineteenth-Century French Novel. 3 hours. Readings, lectures and term projects. Prerequisite(s): 6 hours of advanced French.

4200. 20th-Century French Novel. 3 hours. Readings, lectures and discussions of 20th-century French novels. Prerequisite(s): FREN 3050 and 3 additional hours of advanced French.

4310. Contemporary French Civilization. 3 hours. A survey of contemporary French society including institutions, the value system and current issues. Readings, discussions and audiovisual materials. Prerequisite(s): 6 hours of advanced French or consent of department.

4500. The French Short Story. 3 hours. Close study of the French short story, with emphasis on oral discussion and oral testing as preparation for the Texas Oral Proficiency Test (TOPT) required for teacher certification in French. Required for teaching majors. Prerequisite(s): FREN 3060 and 3070.

4920. Cooperative Education in French. 1-3 hours. Supervised work in a job directly related to the student’s major, professional field of study or career objective. Prerequisite(s): 12 hours of credit in French; student must meet the employer’s requirements and have consent of the department chair. May be repeated for credit.
5016-5026. French for Graduate Research. 3 hours each. French readings and related grammar designed to prepare graduate students for reading examination and to acquaint them with the language as a research tool. No prior knowledge of French is required. Evaluation on a pass/no pass basis.

5050. French Literature of the Seventeenth Century. 3 hours. The 17th-century French theatre, with emphasis on Corneille, Racine and Molière.

5120. French Civilization. 3 hours. A history of French civilization from the origins to World War II, including art history, music history, literary movements and social issues; or a survey of contemporary French society, including institutions, the value system and current issues in France. May be repeated for credit as topics vary.

5150. Seminar in French. 3 hours. Topics include a) practicum in teaching college level French (open only to departmental teaching fellows) and b) theory of teaching methodology and language acquisition in French (open to all graduate students). May be repeated for credit as topics vary.

5200. Seminar in French. 3 hours. Topics taught include the 20th-century French novel; the 20th-century French theatre; selected readings in 18th-century literature; selected French writers of the 19th century, such as Hugo, Balzac, Stendhal, Baudelaire and Flaubert; and French Renaissance literature, advanced grammar and advanced civilization and culture. May be repeated for credit as topics vary.

5300. French Linguistics. 3 hours. This course will cover a particular aspect of French linguistics, such as advanced French grammar, phonology, or morphology and syntax. May be repeated for credit as topics vary.

5350. Theory and Analysis of Literary Texts. 3 hours. This course will study major essays on semiology and literary theory by French structuralist and post-structuralists. It will also focus on methods of literary analysis applied to representative prose/poetry of French classics. May be repeated for credit as topics vary.

5500. Nineteenth-Century French Poetry. 3 hours. Study and analysis of the major schools of French poetry of the nineteenth century, including the works of the Romantics Lamartine, Vigny, Hugo and Musset; the Parnassians Gautier and Leconte de Lisle; and the Symbolists Baudelaire, Verlaine, Rimbaud and Mallarmé.

5900-5910. Special Problems. 1-3 hours each. Conference courses open only to advanced students capable of doing independent research under the direction of the instructor. Registration permitted only upon recommendation by the instructor and consent of the department chair.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

German, GERM = 0132

4180. Advanced German for Business. 3 hours. Advanced listening, speaking, reading, writing and cultural skills with an emphasis on German for business in German-speaking business environments. Prerequisite(s): GERM 2050 and one upper-level German course. GERM 3180 (Introduction to Business German) is recommended. No prior knowledge in the field of business is necessary.

4310. Topics in Advanced German Culture. 3 hours. Topics include German-language literature, music, art, literature as film, philosophy and historical developments. Prerequisite(s): 3 hours of advanced German, or GERM 2050 or equivalent and consent of department. May be repeated for credit as topics vary.

4330. Topics in Advanced German Language. 3 hours. Topics include German grammar, syntax, language history, dialects and linguistics. Prerequisite(s): GERM 2050 or equivalent. May be repeated for credit as topics vary.

4350. Topics in Advanced German Literature. 3 hours. Topics include study of a period, movement, theme, genre or author. Prerequisite(s): 3 hours of advanced German, or GERM 2050 or equivalent and consent of department. May be repeated for credit as topics vary.

5017-5027. German for Graduate Research. 3 hours each. German readings and related grammar designed to prepare graduate students for reading examination and to acquaint them with the language as a research tool. No prior knowledge of German is required. Evaluation on a pass/no pass basis.

Italian – see Undergraduate Catalog

Japanese – see Undergraduate Catalog

Language – see Undergraduate Catalog

Russian – see Undergraduate Catalog

Spanish, SPAN = 0138

4010. Aspects of Contemporary Mexican Culture. 3 hours. Study of various aspects of Mexican culture, including historical, literary, artistic, political and economic arenas. Offered in Mexico to provide total immersion in the language and culture with field trips to culturally significant sites. Prerequisite(s): completion of at least one year of Spanish or the equivalent. Spanish majors and minors are preferred.

4020. Aspects of Contemporary Spanish Culture. 3 hours. Study of Spanish culture, including historical, literary, artistic, political and economic arenas. Offered in Spain to provide total immersion in the language and culture with field trips to culturally significant sites. Locations to include Toledo, El Escorial, Valle de los Caídos and Madrid, including the Royal Palace, Prado, Reina Sofia and Sorolla Museums. Prerequisite(s): SPAN 2050 or equivalent or consent of department.

4080. Business Spanish. 3 hours. Oral, written and reading skills in Spanish for business purposes, as well as a cultural understanding of how business transactions are conducted in the Hispanic world. Prerequisite(s): 6 hours of advanced Spanish or consent of department.
4120. Advanced Spanish Grammar. 3 hours. Pronunciation principles, orthography and punctuation; syntactical, lexical and stylistic aspects. Prerequisite(s): SPAN 2050 or consent of department.

4210. Spanish Phonetics and Pronunciation. 3 hours. Study of the Spanish sound system and how it corresponds to Spanish orthography and pronunciation. Prerequisite(s): SPAN 2050 or equivalent.

4310-4320. Survey of Spanish Literature. 3 hours each. Readings, lectures, discussions and term projects. Prerequisite(s): 6 hours of advanced Spanish or consent of department.

4310. Spanish literature to 1700.

4320. Spanish literature since 1700.

4330. Post-Franco Spain: Literature and Culture. 3 hours. Study of the literature, culture and lifestyle of the Spanish people since the death of Franco and the country’s return to democracy. Readings, discussions and audiovisual materials. Prerequisite(s): 6 hours of advanced Spanish or consent of department.

4360-4370. Survey of Spanish-American Literature. 3 hours each. Readings, lectures, discussions and term projects. Prerequisite(s): 6 hours of advanced Spanish or consent of department.

4360. Spanish-American literature from the colonial period to 1888.


5019-5029. Spanish for Graduate Research. 3 hours each. Spanish readings and related grammar designed to prepare graduate students for reading examination and to acquaint them with the language as a research tool. No prior knowledge of Spanish is required. Evaluation on a pass/no pass basis.

5150. Seminar in Spanish. 3 hours. Topics include a) practicum in teaching college Spanish (open only to departmental teaching fellows) and b) theory of teaching methodology and language acquisition in Spanish (open to all graduate students). May be repeated for credit as topics vary.

5200. Seminar in Spanish. 3 hours. Topics include Spanish prose of the Golden Age, the Generation of ‘98, the 19th-century Spanish novel, the 20th-century Spanish essay, the Spanish-American short story, Spanish-American poetry, Gauchesque literature, the contemporary Spanish-American novel, advanced grammar and advanced civilization and culture. May be repeated for credit as topics vary.


5480. Spanish Poetry. 3 hours. The development of Spanish poetry from its origins to the present. Readings, lectures and term projects.

5900-5910. Special Problems. 1-3 hours each. Conference courses open to advanced students capable of doing independent research under the direction of the instructor. Registration permitted only upon recommendation by the instructor and consent of the department chair.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

French
see Foreign Languages and Literatures

General Music
see Music

General Technology
see Engineering Technology

Geography

Archaeology, ARCH = 0139
4620. Topics in Archaeology. 3 hours. Selected topics of interest and significance in archaeology. Subjects such as historic archaeology, Texas archaeology, New World archaeology, Old World archaeology and Meso-American archaeology are potential topics offered during different semesters. Prerequisite(s): ARCH 2500 or consent of department. May be repeated for credit as topics vary.

4810. Archaeological Field School. 6 hours. Comprehensive training in site survey, excavation techniques, laboratory processing, restoration and analysis of archaeological materials through direct participation in an archaeological field project. Prerequisite(s): ARCH 2500 or consent of department. Held off campus; room and board fees may be required. Usually offered only during the summer months and based on the availability of field projects. This course is taught in cooperation with the Institute of Applied Sciences.

Earth Science, GEOG = 0140
4170. Map-Air Photo Analysis. 3 hours. Evaluation and interpretation of aerial photography and satellite images from the most common sensing radar. Digital processing of satellite data on microcomputer. Prerequisite(s): GEOL 1610, GEOG 1710, 2400, or consent of department.

4240. Meteorology. 3 hours. Weather elements and controls; air masses and upper air wind flow; emphasis on atmospheric storm systems. Prerequisite(s): GEOG 1710 or consent of department.

4250. Climatology. 3 hours. Description and analysis of world climates; major classifications, controls, regional distribution and change. Prerequisite(s): GEOG 1710 or consent of department.
4400. Introduction to Remote Sensing. 3 hours. (2;1) Principles of remote sensing technology, including the physics of energy for remote sensing, aerial photography, digital imaging, airborne and space-borne multispectral/hyperspectral scanners, and thermal and microwave imaging. Analytical techniques and applications of remotely sensed data in geography and other fields are introduced. Skill training of handling both analog and digital remote sensing data manually and with digital image processing systems is provided. Prerequisite(s): GEOG 1710 or GEOL 1610 or consent of instructor.

4420. Conservation of Resources. 3 hours. Designed to encourage an awareness of the need for wise use and proper management of the natural resources on which human welfare depends; how resources management operates in the framework of laws and policies, technical resource knowledge, education, and economics.

4500. Introduction to Geographic Information Systems. 3 hours. (2;2) Introduction to the concepts of computer-based spatial data handling, known as geographic information systems (GIS) technology. Presents the concepts of GIS in a general way utilizing several GIS packages and hypothetical GIS problems. Prerequisite(s): CSCI 1100 or consent of department.

4520. Intermediate Geographic Information Systems. 3 hours. (1;2) Step-by-step approach to GIS database construction and maintenance, spatial data integration, and analysis, and cartographic presentation. Topics include the toolbox approach of modern systems, advanced spatial data models and structures for vector-based GIS, commonly used map projections and coordinate systems, design and implementation of a GIS project, and the assembly of GIS functions for complex tasks. Prerequisite(s): GEOG 4500 or consent of instructor.

4550. Advanced Geographic Information Systems. 3 hours. Advanced spatial analysis through the use of specialized computer software and the design and development of spatial databases. The course includes project planning, database development, data manipulation and analyses, cartographic output and project presentation. Prerequisite(s): GEOG 4500 or consent of department.

4560. Visual Programming for Geographic Information Systems. 3 hours. (1;2) Geographic information system customization. Introduction to object-oriented programming. Designing software for visualization of spatial data, database query, function extension and graphical user interface customization. Prerequisite(s): GEOG 4500 or consent of instructor.

4750. Fluvial Geomorphology. 3 hours. Examines the role of rivers as geomorphologic agents. Includes discussion of the systems approach to fluvial geomorphology, fluid mechanics of open-channel flow, sediment and solute transport, channel morphology and river adjustments to environmental change at various time scales. Prerequisite(s): GEOL 1610, GEOG 1710 or consent of department.

4920. Cooperative Education in Geography. 3 hours. Job experience in a government agency and/or business for geography majors. Requires participation in a formal project. Prerequisite(s): a minimum of 12 hours completed in the major, a 2.5 GPA in the major and consent of the internship director.

4960. Geography Institute. 3 hours. For students accepted by the university as participants in special institute courses. May be repeated for credit as topics vary.

5120. Research in Physical Geography. 3 hours. Study of physical processes manifest at or near the earth’s surface. Topics will focus on atmosphere, hydrologic, geomorphic, and tectonic processes and associate phenomena. May be repeated for credit as topics vary.

5150. Water Resources Seminar. 3 hours. Topics will be considered from ecology, ground water hydrology and fluvial geomorphology. Special consideration will be given to energy flows within the watershed, and the economic, political, legal and ecological consequences of ground water depletion. May be repeated for credit as topics vary.

5170. Map-Air Photo Analysis and Remote Sensing. 3 hours. Evaluation and interpretation of maps and aerial photographs, including infrared imagery and remote sensing techniques.

5400. Environmental Modeling. 3 hours. (2;2) Modeling of environmental processes and human impacts on the environment to include topics on sensitivity, calibration and evaluation, watersheds, non-point source pollution, hydrological models, GIS, water and air quality models, pollutant transport and fate, and ecotoxicology. Prerequisite(s): graduate standing or consent of department.

5500. Introduction to Geographic Information Systems. 3 hours. (2;2) Introduction to the concepts of computer-based spatial data handling, known as Geographic Information Systems (GIS) technology. Presents the concepts of GIS in a general way utilizing several GIS packages and hypothetical GIS problems. Prerequisite(s): consent of department.

5520. Intermediate Geographic Information Systems. 3 hours. (1;2) Step-by-step approach to GIS database construction and maintenance, spatial data integration and analysis, and cartographic presentation. Topics include the toolbox approach of modern systems, advanced spatial data models and structures for vector-based GIS, commonly used map projections and coordinate systems, design and implementation of a GIS project, and the assembly of GIS functions for complex tasks. Prerequisite(s): GEOG 5500 or consent of instructor.

5550. Advanced Geographic Information System. 3 hours. (1;3) Advanced spatial analysis through the use of specialized computer software and the design and development of spatial data bases. The course includes project planning, database development, data manipulation and analyses, cartographic output and project presentation. Prerequisites: GEOG 3050, 4500 or consent of the department.

5560. Visual Programming for Geographic Information Systems. 3 hours. (1;2) Step-by-step approach to GIS database construction and maintenance, spatial data integration and analysis, and cartographic presentation. Topics include the toolbox approach of modern systems, advanced spatial data models and structures for vector-based GIS, commonly used map projections and coordinate systems, design and implementation of a GIS project, and the assembly of GIS functions for complex tasks. Prerequisite(s): GEOG 5500 or consent of instructor.

5600. Visual Programming for Geographic Information Systems. 3 hours. (1;2) Modern GIS embraces the concept of open systems, which mean GIS software can be customized to fit specific requirements of individual implementation environments. To meet the high demand of this kind, this course introduces basic concepts and skills of object-oriented programming and GIS customization. Software design and implementation for spatial data visualization, database query, graphical user interface (GUI) customization, and function module integration. Prerequisite(s): GEOG 5500, 5550 or consent of instructor.
5700. Global Dynamics. 3 hours. (2:2) Biosphere-geosphere models on a global scale. Topics include past global changes and climate variability, assessing impacts of global change, dynamic biogeography, interdisciplinary approaches, economics and policy issues, and applications of GCM, GIS and remote sensing. Prerequisite(s): graduate standing or consent of department.

5900. Special Problems. 1-3 hours. Research by graduate students in fields of special interest. Prerequisite(s): consent of department.

5960. Geography Institute. 3 hours. For students accepted by the university as participants in special institute courses. May be repeated for credit as topics vary.

Geology, GEOL = 0141

4630. Soils Geomorphology. 4 hours. (3;3) Methods and applications of soils and landform analysis. Soils classification, formation processes and relationships to landforms and vegetation are stressed. Methods of soils description, mapping and physical-chemical analysis are taught, and applications to study of landscape change and land-use planning are emphasized. Prerequisite(s): GEOG 3350 or consent of department.

4650. Environmental Geology. 3 hours. Geologic aspects of land-use planning; earthquakes, landslides, coastal processes, streams and flooding, soils, groundwater, and waste disposal; planning for the future. Prerequisite(s): GEOL 1610, GEOG 1710 or consent of department.

4850. Introduction to Groundwater Hydrology. 3 hours. Topics to include principles of groundwater flow; aquifer properties and characteristics; geology of groundwater occurrence; groundwater development and methods for assessing and remediating the environmental problem of groundwater contamination. Emphasis on application of basic principles. Prerequisite(s): MATH 1650 or equivalent; GEOG 1710 or consent of department.

Regional Science, GEOG = 0140

4060. Computer Cartography. 3 hours. (1;2) An introduction to conceptual and practical aspects of computer cartography. Topics include: importation of digital maps; map editing; editing map attribute databases; map design and printing. Prerequisite(s): GEOG 3050 or consent of department.

4120. Medical Geography. 3 hours. Locational aspects of disease and health care, spatial patterns of diseases, health facilities, health care policies and problems. Prerequisite(s): GEOG 2400 or consent of department.

4210. Urban Geography. 3 hours. The urban geography of advanced nations. Specific topics include urban systems analysis, the internal geography of cities and contemporary spatial and social changes in urban areas. Prerequisite(s): GEOG 1170, 1200, 2400 or consent of department.

4410. Location-Allocation Modeling. 3 hours. Introduction to location-allocation models for service delivery. Covering, p-median, p-center and hierarchical models and their applications; data accuracy, aggregation and distance problems in location-allocation modeling. Prerequisite(s): CSCI 1100, GEOG 2400, or consent of department.

4960. Geography Institute. 3 hours. For students accepted by the university as participants in special institute courses. May be repeated for credit as topics vary.

510. Research Design and Geographic Applications. 3 hours. Themes in geographical research, application of scientific method in spatial problem-solving and analysis.

5130. Research in Human Geography. 3 hours. Study of spatial and ecological relationships with cultural, demographic, political, economic and social forces shaping human settlement patterns. May be repeated for credit as topics vary.

5190. Advanced Quantitative Techniques. 3 hours. Application of advanced statistical procedures including multivariate techniques to analysis of point and areal patterns and spatial data. Prerequisite(s): GEOG 3190 or consent of department.

5210. Seminar in Urban Geography. 3 hours. Study of current perspectives on geographic inquiry as they relate to metropolitan development and change; the economic, social and political production of space; economic restructuring; segregated spaces; spatial conflicts; corporate and urban hierarchy; urban physical environment. Prerequisite(s): either ECON 4650, GEOG 4210, PSCI 4020 or SOCI 3300.

5600. Seminar in Environmental Policy. 3 hours. Analysis and evaluation of environmental policy, including spatial, historical, economic, ecological and institutional dimensions of contemporary resource management issues.

5900. Special Problems. 1-3 hours. Research by graduate students in fields of special interest. Prerequisite(s): consent of department.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

Geology

see Geography

German

see Foreign Languages and Literatures

Great Books Program

see Undergraduate Catalog
## Graduate Studies

### University Courses, UCRS = 0178

The following University Courses are interdisciplinary in nature and are available to students working toward the master’s degree with the interdisciplinary major.

- **5010. Interdisciplinary Seminar.** Variable credit.
- **5900. Special Problems.** 1-3 hours.
- **5920. Research Problems in Lieu of Thesis.** 3 hours.
- **5950. Master’s Thesis.** 3 or 6 hours. To be scheduled by the student who wishes to present a thesis as part of the interdisciplinary degree program.

## Health Promotion

See Kinesiology, Health Promotion and Recreation

## Higher Education

See Counseling, Development and Higher Education

## History

### History, HIST = 0144

- **4010. History of Science and Technology to Newton.** 3 hours. Science and technology from ancient times to the Scientific Revolution emphasizing the presuppositions of scientific inquiry, the relationship between science and technology and their impact on society.
- **4020. History of Science and Technology Since Newton.** 3 hours. Science and technology from Newton to the present emphasizing the presuppositions of scientific inquiry, the relationship between science and technology and their impact on society.
- **4050. Russia to the Mid-Nineteenth Century.** 3 hours. From the ninth century; Kievan Rus, Mongols, Muscovy and Imperial Russia to Alexander II.
- **4060. Russia from the Mid-Nineteenth Century.** 3 hours. From Alexander II; last imperial decades, world war, revolution and rise and fall of the Soviet Union.
- **4070. World War II.** 3 hours. Europe, 1939-1945; military operations and occupations, the Holocaust, politics, diplomacy, technology, the Pacific Theater, and the atomic bomb.
- **4080. Early England from the Anglo-Saxons Through the Tudors.** 3 hours. Social, legal, political, religious and intellectual developments in England from the early Middle Ages through the Reformation.
- **4090. Britain and Ireland in the Age of Revolution, 1603-1832.** 3 hours. The British Isles from the accession of James I to the eve of the first Reform Act. Change and continuity amid the rise and fall of royal dynasties, civil war, scientific and commercial revolutions, revolt in the colonies and the politicization of groups traditionally excluded from government: religious dissenters, Irish Catholics, artisans and women.
- **4100. Modern Britain Since 1830.** 3 hours. British political, social, economic, cultural and sexual history to the present.
- **4110. British Empire and Commonwealth.** 3 hours. British global expansion from the 17th century; warfare, trade, and cultural exchanges; responses of colonized peoples; decline of empire in the 20th century; creation of the British Commonwealth of Nations.
- **4120. The Conquest of South America.** 3 hours. The European discovery, conquest and Europeanization of South America to 1700.
- **4170. South American Independence, 1700-1830.** 3 hours. The decline and fall of the Spanish and Portuguese empires and the emergence of the South American nations.
- **4180. Colonial Mexico and the Spanish Southwest.** 3 hours. Conquest and expansion of the Spanish in North America.
- **4190. Mexico, 1810-Present.** 3 hours. Social, economic and political history since independence.
- **4200. The Spanish Frontier in North America.** 3 hours. History of the Spanish colonial settlements located within the present boundaries of the United States from 1513 to 1821. Particular attention is paid to the Spaniards’ relations with the Native Americans of Florida, New Mexico, Texas and California.
- **4210. Southern Plains Indian History.** 3 hours. Examines the social and political history of the Native American tribes from the pre-Columbian era to the present. Particular attention is paid to the Caddos, Comanches and Wichitas and their relations with Euroamericans.
- **4220. The Renaissance.** 3 hours. Europe in the 14th and 15th centuries; the rebirth of the dignity of man, the formation of nation states, Florence, Venice, humanism, art, plague, women, Machiavelli, and the flowering of the fine arts.
- **4230. The Age of the Reformation.** 3 hours. Europe in the 16th and 17th centuries; the Protestant Reformation, the Catholic Reformation and Counter-Reformation, Erasmus, peasant revolts, family life, Anabaptists and persecution.
- **4250. Medieval Europe, 500 to the Renaissance.** 3 hours. Christianity, feudalism, crusades, universities, growth of the state, and artistic and intellectual developments.
- **4260. Topics in History.** 3 hours. Specific historical topics: Groups A (U.S.), B (Europe) or C (Africa, Asia and Latin America); classification depends on the topic. May be repeated for credit as topics vary.
- **4290. Intellectual, Cultural and Social History of Medieval and Early Modern Europe.** 3 hours. Christianity through the Enlightenment; monasticism; rise of schools and universities; philosophy; religious dissent and Protestantism; the Scientific Revolution; women, the family and sexuality.
- **4300. The French Revolution and Napoleon, 1789-1815.** 3 hours. The crisis of the Old Regime, struggle for democracy and rise of a military state.
4320. Anti-Semitism in Europe, Eighteenth to World War II. 3 hours. History and study of anti-Semitism and Jews in Europe from the 18th century to World War II.

4330. Absolutism and Enlightenment in Europe, 1648-1789. 3 hours. Politics, economics, culture and society.

4340. Europe in the Nineteenth Century, 1815-1914. 3 hours. Politics, intellectual movements and diplomacy with special attention to nationalism.

4350. Europe in the Age of the Dictators, 1914-1945. 3 hours. World War I; rise of Fascists, Nazis and Communists; the Great Depression; World War II and the Holocaust.

4360. Europe Since World War II. 3 hours. Recovery, the European retreat from colonialism, popular culture, youth and sexual revolution, the new society, and politics.

4370. Intellectual, Cultural and Social History of Modern Europe since 1789. 3 hours. The French Revolution, romanticism, reform movements, realism, feminism and the intellectual currents of the 20th century.

4380. The European Witch Hunts. 3 hours. The origins, intensity and decline of the witch hunts that engulfed Europe from the late 16th to the early 18th century.

4390. The Holocaust, 1933-1945. 3 hours. European Jews and their destruction during Nazi Germany’s ascendency: Jewish communities and anti-Semitism before the Nazis; institutions and processes of extermination; victims, including non-Jews; perpetrators; historical background.

4400. Intellectual, Cultural and Social History of the United States to 1865. 3 hours. Puritanism to the birth of the modern United States.

4410. Intellectual, Cultural and Social History of the United States Since 1865. 3 hours. Reconstruction, Progressivism, evolution of the Welfare State, and civil rights.

4420. United States Constitutional Development, 1783-Present. 3 hours. The Articles of Confederation, the Constitution, role of the Supreme Court and changing nature of constitutional doctrines.

4430. United States Political Parties, 1783-Present. 3 hours. Growth and development of the two-party system; the parties’ role in the political development of governmental institutions.

4440. African-American History and Culture to 1900. 3 hours. Social, cultural and political history of African Americans from the colonial period; slavery and its consequences.

4450. African-American History and Culture Since 1900. 3 hours. Social, cultural and political history of African Americans in the United States; development of segregation; civil rights movement.

4465. Women in the United States to 1900. 3 hours. Women’s daily lives, work, public and political activism; differences and divisions among women.

4470. Women in the United States Since 1900. 3 hours. Women’s daily lives, work and modern feminism; differences and divisions among women.

4480. Colonial America. 3 hours. The English Colonies in North America to 1763.

4490. The American Revolution, 1763-1789. 3 hours. The founding of the United States.

4530. Islamic World, 600-1800. 3 hours. Islamic politics, society and culture.

4540. The Islamic Middle East from Muhammad to the Present. 3 hours. Middle Eastern politics, society and culture; the Prophet, rise and fall of the Ottoman Empire, influence of Europe, imperialism, the creation of nations and nationalism, and the Arab-Israeli conflict.

4550. Traditional China. 3 hours. Chinese politics, ideas, economics and society from the Xia dynasty (ca. 2205 BCE) through the High Qing (late 18th century CE); political philosophy, the imperial state, Buddhism, women’s roles and political and economic relations with non-Chinese peoples and states.

4560. Modern China. 3 hours. Chinese politics, ideas, economics and society from the High Qing (late 18th century) through 1989; European idealism, the decline and fall of the Qing dynasty, Republicans and Communists, women, modernization and the question of democracy.

4570. Japanese History. 3 hours. Jomon Culture (ca. 10,500 BCE) through the 1970s; myth and history, the imperial system, Buddhism and Confucianism, samurai culture, modern economic development, European imperialism, Japan’s rise to a world power, and the post–World War II “economic miracle.”

4580. Africa to the Nineteenth Century. 3 hours. The ancient civilizations of Egypt, Kush, Axum, Ethiopia, Sudan and others; contacts with Europe and Asia, Islam, and the slave trade.

4590. Modern Africa. 3 hours. African continent since 1800 emphasizing European colonization and colonial rule, African resistance; the rise of nationalism and liberation movements.

4640. Early United States Military History to 1815. 3 hours. The genesis and development of the U.S. military tradition and system from colonial times through 1815.

4650. Evolution of Warfare to Napoleon. 3 hours. Art and science of warfare from ancient Greek society to the end of the French Revolution.

4660. Evolution of Warfare from Napoleon. 3 hours. Art of warfare from the French Revolution to the Cold War.

4680. The United States City in the Nineteenth and Twentieth Centuries. 3 hours. Issues and problems surrounding the U.S. city from the rise of the eastern seaports to the development of metropolitan areas nationwide.

4690. The Automobile in United States History. 3 hours. The social, industrial, labor, marketing and design impact of the automobile in the United States.

4700. Texas. 3 hours. Development of Texas from its frontier beginnings to an urban state.

4750. The Early American Frontier. 3 hours. The Frontier as region and process from the Atlantic seaboard to the Mississippi Valley.
4760. The Trans-Mississippi West in American History. 3 hours. Political, economic and social institutions of the West and their influence on national development.

4780. Indian Policy in United States History. 3 hours. Indian policy from the colonial period to the present.

4790. Diplomatic History of the United States Since 1945. 3 hours. Diplomatic problems since 1945.

4800. The Relations Between the United States and Latin American Countries. 3 hours. Latin American policies of the United States; diplomatic, economic and cultural relations.

4830. The Old South. 3 hours. From the colonial era to the Civil War; society, culture, economics and politics.

4840. The New South. 3 hours. The United States South since 1877.

4850. The Early National Period of the United States, 1789-1848. 3 hours. Securing the republic, the rise of democracy, and territorial expansion.

4860. The Civil War and Reconstruction. 3 hours. The slavery issue, secession, the appeal to arms, and Reconstruction.

4870. Making of the Modern United States, 1877-1929. 3 hours. The era of industrialization, reform, war and reaction.

4880. United States Since 1929. 3 hours. The Great Depression, the New Deal, World War II, the Cold War, civil rights and beyond.

5040. Studies in Modern European History. 3 hours. Extensive readings and study in one of the topical areas of modern European history. May be repeated for credit as topics vary.

5060. Seminar in Recent and Contemporary European History. 3 hours. Studies in European history since World War I.

5080. Seminar in Modern European History. 3 hours. Research seminar in modern European history. May be repeated for credit as topics vary.

5100. Seminar in United States History. 3 hours. Research seminar in United States history. May be repeated for credit as topics vary.

5110. Studies in United States History. 3 hours. Extensive readings and study in United States history. May be repeated for credit as topics vary.

5130. Studies in World History: Latin American or Asian. 3 hours. Extensive readings and study in either Latin American or Asian history. May be repeated for credit as topics vary.

5150. Seminar in World History: Latin American or Asian. 3 hours. Research seminar in either Latin American or Asian history. May be repeated for credit as topics vary.

5190. Studies in Near East/African History. 3 hours. Extensive readings and study in one of the topical areas of Near East/African history. May be repeated for credit as topics vary.

5220. Studies in United States Military/Diplomatic History. 3 hours. Extensive readings and study in either United States military or diplomatic history. May be repeated for credit as topics vary.

5230. Seminar in United States Military/Diplomatic History. 3 hours. Research seminar in either United States military or diplomatic history. May be repeated for credit as topics vary.

5240. Studies in European Military/Diplomatic History. 3 hours. Extensive readings and study in either European military or diplomatic history. May be repeated for credit as topics vary.

5250. Seminar in European Military/Diplomatic History. 3 hours. Research seminar in either European military or diplomatic history. May be repeated for credit as topics vary.

5260. Seminar in Near East/African History. 3 hours. Research seminar in Near East/African history. May be repeated for credit as topics vary.

5420. Research Seminar in Local History. 3 hours. Research and writing of local history.

5460. Archives and Manuscript Repositories Studies. 3 hours. Examines the theory and role of archives and manuscript repositories, their history and basic practices used in each.

5470. Museum Studies. 3 hours. Examines the theory and role of museums in history and basic practices used in them.

5480. Applied History Practicum. 3 hours. Practical experience in collecting, evaluating, preparing, describing and displaying archives, manuscripts and artifacts that involve either archives or museums. Includes working experience in either an archive, manuscript repository or museum. Prerequisite(s): HIST 5460 or 5470.

5500. Techniques of Oral History. 3 hours. Training in methodology of conducting, editing, transcribing and indexing interviews with eyewitnesses to or participants in historic events; emphasis on archival functions.

5520. Oral History: Project Development and Implementation. 3 hours. (0:0:3) A detailed, advanced consideration of the planning and development of an oral history project. Purpose is to create sources of research information to be used writing the master’s thesis. Prerequisite(s): HIST 5500. May be repeated for credit.

5900-5910. Special Problems. 1-3 hours each. Conference courses open to advanced students capable of doing independent research under the direction of the instructor. Registration permitted only with consent of department.

5940. Historical Bibliography. 1 hour. An introduction to major reference materials in American and European history with discussions of significant research centers. Required for all beginning graduate students unless waived by the department chair or graduate committee chair.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.
5960-5970. History Institute. 1-6 hours each. For students accepted by the university as participants in special institute courses. May be repeated for credit as topics vary but not to exceed a total of 6 hours in each course.

5980. Teaching of College History. 1 hour. An examination of the philosophies and techniques of teaching history at the college and university level. Open to all graduate students and required of all history teaching fellows at their first opportunity to take it. This course is in addition to other degree requirements.

6000. Historiography. 3 hours. United States and European historiography. A history of United States and European historical literature. Required of all PhD students in history.

6900-6910. Special Problems. 1-3 hours each. Research by doctoral students in the fields of special interest. Prerequisite(s): consent of department.

6940. Individual Research. 3 hours. Doctoral research of an independent nature. May be repeated for credit.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

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Honors Courses
see Undergraduate Catalog

Hotel Restaurant Management
see Merchandising and Hospitality Management

Information Science
see Library and Information Sciences

Insurance
see Finance, Insurance, Real Estate and Law

Italian
see Undergraduate Catalog

Japanese
see Undergraduate Catalog

Jazz Studies, Music
see Music

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Journalism

Journalism, JOUR = 0148

4040. Advertising Media and Marketing Strategy. 3 hours. Modern print- and time-buying procedures important to media salespeople as well as to advertising agency media buyers. Assignments in audience research including understanding uses of Arbitron, identifying media that reach definitive target audiences and using effective media mixes. Prerequisite(s): JOUR 2010, 2020 and 2310.

4050. Advertising Copywriting. 3 hours. Advertising strategy and execution (writing) for print, broadcast and other media. Prerequisite(s): JOUR 2010, 2020, 2310 and 3010 (3010 may be taken concurrently), or consent of department.

4055. Broadcast Advertising. 3 hours. Writing television and radio scripts, followed by actual production of the scripts in a television studio and a sound recording studio. Lectures cover writing, preproduction, production and examples of radio and television commercials. Prerequisite(s): consent of professor.

4060. Case Studies in Advertising Administration. 3 hours. Advertising policy, and strategy formulation and implementation; creative and media decision making structure and procedure; advertising and marketing mix coordination; professional, client, agency, media and collateral systematization; consumer, retail, industrial and institutional applications; current industry dynamics, controversies, trends and implications. Prerequisite(s): JOUR 2010, 2020, 2310, 3010, 4040 and 4050, or consent of department.

4070. Advertising Campaigns. 3 hours. Role of the advertising agency. Factors in an advertising campaign. Creation of an advertising plan and creation of a campaign from scratch, bringing together skills and knowledge from all other advertising courses. Presentation of a campaign. Prerequisite(s): JOUR 2010, 2020, 2310, 3010, 4040 and 4050.

4090. Advertising Practicum. 3 hours. Supervised off-campus advertising work experience in Denton, Dallas and Fort Worth areas offered to selected advertising majors. Students must apply for practicum in advance and are assigned only if they meet standards set by the department. Prerequisite(s): JOUR 4070 or consent of department. Students may not earn credit for both JOUR 4090 and 4800.

4100. Supervising School Publications. 3 hours. For journalism teachers who plan to supervise high school or college newspapers, yearbooks and magazines; teaching of basic journalism courses, staff organization, editorial supervision, advertising sales, business management, promotion and production; school publications and school administration. Prerequisite(s): JOUR 2320 or consent of department.

4200. Computer Applications for Journalism. 4 hours. (3;4) Using hardware and software technology for print publications and computer-mediated communication in news media, public relations and advertising. Experience with desktop publishing, databases, scanning, graphic design, color printing, and internet applications, including searches and web design using HTML and authoring programs. Prerequisite(s): CSCI 1100 or proficiency and consent of department.
4210. Topics in Journalism and Mass Media. 3 hours. Rotating topics. Representative topics include: sports writing, direct advertising, minorities in the media, public relations/advertising research. May be repeated for credit as topics vary. Prerequisite(s): consent of department.

4250. Race, Gender and the Media: A Methods Approach. 3 hours. Explores the social construction of race and gender, and evaluates their use in the media. Adapting research as well as a practical approach to the subject, this course will involve students not only in evaluating contemporary media portrayals, but also in composing their own stories involving race/gender topics. Prerequisite(s): consent of department.

4310. Creative Writing. 3 hours. Various forms of creative writing; short story. Prerequisite(s): consent of department. Offered in alternate years. Course is 50 percent web-based when offered in the summer term.

4321. Opinion Writing. 3 hours. Writing for the editorial page: editorials and columns. Writing critical reviews of literature, performing arts and the visual arts. Emphasis on editorials, book reviews and theatrical, musical, dance, film and television performances. Prerequisite(s): JOUR 2320 or consent of department.

4330. Broadcast News. 3 hours. (2;3) Gathering, preparation and presentation of a generic broadcast news product. Prerequisite(s): RTVF 2200 or 2350; JOUR 2310; successful completion of ATTD 1100 (Basic Facility in Typewriting) or equivalent, or passing of typewriting proficiency examination; and consent of the department. (Same as RTVF 4330.)

4410. Reporting of Public Affairs. 4 hours. (3;4) Police, court, political and governmental news with typical practical news assignments; background and practice in writing specialized stories typically covered in the average American city. Cover city council, school board, county commissioner meetings, some at night. Prerequisite(s): JOUR 2320 or consent of department.

4420. Public Relations. 3 hours. Principles, techniques and ethics used in planning programs for businesses, schools, colleges, churches and civic associations. Public relations cases are studied.

4450. Case Studies in Public Relations. 3 hours. Application of public relations principles to cases and problems; analysis of case histories; emphasis on strategic planning and execution of public relations activities, ethics, fact-finding, research, public(s), objectives and evaluation of programs. Prerequisite(s): JOUR 4420.

4460. Public Relations Communication. 3 hours. Writing, editing and producing a wide range of public relations communications materials. Emphasizes use of microcomputers and laser printer in typographic and graphic design and production. Prerequisite(s): JOUR 2320, 3320, 4200 and 4420.

4480. Public Relations Practicum. 3 hours. (0;0;practicum) Supervised experience with public relations firms and departments of organizations. Students must apply for the practicum in advance and are assigned only if they meet standards set by the department. Prerequisite(s): JOUR 3320, 4420 and 4460. Students may not earn credit for both JOUR 4480 and 4400.

4510. Newspaper Management, Problems and Ethics. 3 hours. Ethical and financial problems in editing and managing a newspaper; press freedom, ethics and law; newspaper financing, cost of publication, accounting, plant management and circulation. Prerequisite(s): JOUR 2320.

4620. Mass Communication Law. 3 hours. Legal and ethical problems of mass media: court systems, case procedures, First Amendment concerns, libel, privacy, free press and fair trial, reporting privileges, advertising and public relations law and regulation, pornography, broadcasting-regulations, media concentration, media competition and copyright.

4700. Staff Photography. 3 hours. (3;3) Students assigned to positions on publications staff with instructions in ethics and professional practices in the field of photojournalism. Includes instruction in the use of scanning negatives for a hybrid system publication, professional shooting methods and creation of working portfolio. Laboratory hours fluctuate to fit times of events of photographic assignments and publication deadlines. Prerequisite(s): JOUR 1210, 2310, 2320, 2700 and 3700, or consent of department.

4720. Digital Photography. 3 hours. (3;3-6) Examines the photographic “digital chain”: capture, input, manipulation, output and storage of images. Darkroom tasks such as cropping, dodging, burning and color balancing are performed digitally. Basic software is taught to provide sufficient skills to produce digital photo essay pages. Group projects are put on the World Wide Web. The major emphasis is the prepress handling of photographs and the creation of visual communication materials appropriate for various types of publications including on-line. Ethical and legal concerns involved in working with digital images will be addressed. Prerequisite(s): CSCI 1100 (or proficiency); JOUR 2700, and JOUR 3700 or ART 3550.

4750. Color Photojournalism. 3 hours. (3;3) Instruction in color theory and technical shooting skills for visual documentary and journalistic work. Students shoot, process and scan transparencies and negatives using a digital hybrid system. Emphasis is placed on visual storytelling through development of photographic essays. Prerequisite(s): JOUR 1210, 2310, 2320, 2700 and 3700, or consent of department.

4800. Professional Internship. 3 hours. Practical experience through full-time employment under the supervision of a professor and a professional in the office involved. Prerequisite(s): consent of department. Must be arranged in advance of enrollment. Limit of 3 hours of credit. Different sections scheduled for: advertising, news, photojournalism and public relations internships. Advertising students may not receive credit for both JOUR 4090 and 4800. Public relations students may not receive credit for both JOUR 4480 and 4800. Broadcast news students may not receive credit for both RTVF 4480 and JOUR 4800.

4820. History of American Media. 3 hours. Main trends and economic, social, political, and technological factors and people that produced the institutions and traditions of the American mass media; emphasis on the changing roles of media and the impact of new communications technologies in the 20th century.
4850. Magazine Production. 3 hours. History of American magazines; production sequence of a publication, composition and printing methods, layout problems, writing to fit, cost-quality factors, rewrite, copy reading, styling, writing, titles, blurbs, captions and fitting galleys into layouts. Prerequisite(s): JOUR 3320 or consent of department.

5010. Reporting Practices. 3 hours. A concentrated study of the principles, practices and ethics of reporting and writing news under the pressure of deadlines to develop news judgment, craftsmanship and ability to handle complex news stories. Student work is subject to classroom analysis and criticism. This course prepares students lacking strong journalistic backgrounds for advanced professional courses and may be counted as part of a graduate program in fields other than journalism.

5020. Editing Practices. 3 hours. A concentrated study of the principles and practices of handling copy for print news media, including copy editing, headline writing, design and layout of newspapers and other printed materials, newspaper style, photo editing, the news wire services, and electronic and cabletext editing. Students receive practical experience in the functions of a copy editor. This course prepares students lacking strong journalistic backgrounds for advanced professional courses and may be counted as part of a graduate program in other fields. Prerequisite(s): JOUR 5010 or consent of department.

5040. Media Studies and Theories. 3 hours. This course is designed to introduce the students to enduring issues and problems of American mass media and to the body of knowledge concerning theories on the function, nature, audience, and effects of mass communication. The course examines mass communication as a social system and the contributions of social scientists to the study of mass communication by putting emphasis on political, economic, technological, legal, and historical factors that have shaped American mass media. Prerequisite(s): consent of department.

5050. Readings in Mass Communication. 3 hours. Study of leading bibliographical tools in mass communication, reading of biographies and analysis of the field. Chief aim of the course is becoming acquainted with a large number of books related to mass communication. Three hours per week given to book reports.

5100. Case Problems in Public Relations. 3 hours. Study of public relations trends and principles and how they relate to cases involving organizations and institutions in the profit and non-profit sectors. Attention to the use of proper public relations tools in meeting the needs of each organization’s public.

5150. International Mass Communication. 3 hours. Study of mass communication media throughout the world, with special attention to press and broadcast systems, the sources and flow of international news, and problems of world communication. Course is 50 percent web-based when offered in the summer term. (Same as RTVF 5460.)

5200. Public Opinion and Propaganda. 3 hours. Public opinion and its role in modern society. The significance of propaganda in politics and war during the current century.

5250. Research Methods I (Quantitative). 3 hours. Quantitative study of audiences, contents and effects in mass communication by using tools and techniques of social science research. Emphasis on statistical analysis, survey research, content analysis, and experimental studies.

5260. Research Methods II (Qualitative). 3 hours. Study of the foundations, research methods, practices, theoretical approaches to qualitative research. These methods and approaches include ethnography, literary theory, rhetorical analysis, discourse analysis, gender and race theories, phenomenology, semiotics and others as applied to journalism. Students practice designing well-focused studies, as well as engaging in research practices related to the media.

5300. Theories of Mass Communication. 3 hours. Theoretical approaches to communication; examination of the developing literature in this field, including the contributions of social scientists and others; special problems in communications research.

5310. Media Ethics. 3 hours. Promotes the development of critical thinking and reasoning skills necessary in the mass and hyper media. It examines the relationship between professional ethics and social philosophy and between media practice and a democratic society. Course is 50 percent web-based when offered in the summer term.

5350. Seminar in Journalism and Mass Communication. 3 hours. Extensive readings, analysis and discussion of significant topics not covered by course offerings. Topics include impact of new technology on the mass media, ethical problems in the mass media, economic problems in media development. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

5500. Integrated Communications. 3 hours. Teaches students how to design the strategic planning of a comprehensive communications plan that evaluates the roles of a variety of disciplines including advertising, direct response, public relations, and promotions. Such tactics are shown to provide clarity, consistency and maximum efficiency in all communication programs. Prerequisite(s): consent of department.

5800. Professional Internship. 3 hours. Practical experience in areas of journalism through an arranged internship under the instruction and supervision of the major professor and a designated professional of the office involved. Different sections scheduled for each of the following internships: advertising, news-editorial, photojournalism and public relations. Prerequisite(s): consent of department. Normally, no more than 3 hours may apply toward the master’s degree.

5900-5910. Advanced Problems in Journalism. Variable credit. Maximum of 6 hours credit. Individual investigations of current problems in such areas as ethics of mass communication, reporting, editing, international communication, newspaper or magazine publishing, advertising, photojournalism and journalism education.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.
Kinesiology, Health Promotion and Recreation

Health Promotion, HLTH = 0540

4100. Epidemiology of Communicable and Non-Communicable Disease. 3 hours. Study of the nature, prevention, control and treatment of communicable, chronic, degenerative and idiopathic human disease; an analysis of the principles related to the causality of disease and the role of the public health practitioner in understanding epidemiologic research. Prerequisite(s): HLTH 1900.

4120. Health Promotion: Development and Application of Presentation Skills. 3 hours. The principles, techniques and practical application of health communication and presentation skills. A synthesis of motivational techniques, analysis and practical application in the effective delivery of health information and knowledge for a variety of settings.

4130. Planning, Administration and Evaluation of Health Programs. 3 hours. Needs assessment and program planning, implementation and evaluation of health programs in various settings.

4150. Drugs and Human Health. 3 hours. Outlines the pharmacological implications of drug use in human health. Nature of drug actions, motivational factors that influence the use of drugs and evaluation of procedures to provide effective drug information to various segments of society. Course suitable for teachers and counselors.

4251. Consumer Health Advocacy. 3 hours. An analysis of appraisals of issues related to the production and distribution of products and services as they affect consumer health. The role of the health educator as a consumer advocate is explored.

4300. Health Promotion in the Corporate Setting. 3 hours. Planning and implementing a comprehensive health promotion program in the corporate and industrial setting. The role of the health educator in developing wellness programs within the business community.

4350. Environmental Community Health. 3 hours. The nature and complexity of environmental health issues including specific health problems associated with environmental health. The role of the health educator in an environmental health program.

4400. Health Promotion Skills and Competencies. 3 hours. Foundational content (history and philosophy), knowledge-base and skills development related to roles and responsibilities of the health educator in developing school- and community-based health promotion programs. Preparation for the Certified Health Education Specialist examination is provided.

4600. Behavioral Change Strategies in Health Promotion. 3 hours. Integration of social and health science content for the purpose of effecting positive health behavior in persons, populations and institutions. The development of interpersonal skills in dealing with health clients in various settings.

4810. Studies in Health Promotion. 1-3 hours. Organized classes for program needs. Prerequisite(s): consent of the health promotion program. Limited-offering basis. May be repeated for credit.

4850. Internship in Community Health Promotion. 6 hours. (1; internship arranged) Performance of a limited work or service project in a public health setting for a minimum of 320 hours; identification and fulfillment of planned learning objectives; self-monitoring and regular seminars on learning accomplishment. Prerequisite(s): HLTH 4120. Students must meet with internship coordinator at least one semester prior to registration for this course.

5100. Research Perspectives in Kinesiology, Health Promotion and Recreation. 3 hours. Research techniques and their application to the research process in kinesiology, health promotion and recreation. (Same as KINE 5100 and RECR 5100.)

5110. Critical Analysis of Professional Literature. 3 hours. Analysis and philosophical criticism of the literature in the student’s major area and other related fields. Extensive reading assignments and discussion of published and unpublished research.

5170. Critical Health Issues. 3 hours. Health aspects and health promotion implications of current health issues. Exploration of health problems currently found in society; role of health educators in terms of preparation, planning, instruction and evaluation. May be repeated for maximum of 6 hours credit.

5290. Human Sexuality Education. 3 hours. Basic human aspects that influence the development of the individual’s total sexuality. The philosophy, content, methods, resources and evaluation that relate specifically to the teaching of human sexuality.

5300. Health Promotion: Advanced Concepts and Theories. 3 hours. An analysis of the growing body of knowledge concerning health promotion and education. Concepts of theory, research and practice are discussed, analyzed and used as a framework for investigative study.

5310-5320. Health Promotion Workshop. 3 hours each. A workshop for teachers, nurses, principals, superintendents and community leaders with opportunities to concentrate on individual and group problems. Activities based upon the problems, needs and interests of participants. Consultants from most areas of health are utilized. HLTH 5320 is taken in conjunction with HLTH 5310.

5500. Advanced Concepts in Epidemiology. 3 hours. Examines the meaning and scope of epidemiological principles, methods and strategies, and the use of morbidity, mortality and other vital statistics data in the scientific appraisal of community health. An understanding of the study, nature, prevention and control of communicable and non-communicable diseases. Prerequisite(s): HLTH 4100 or equivalent, or consent of department.

5510. Stress Management for the Health Professional. 3 hours. This course identifies environmental, organizational, interpersonal and individual patterns of stress with reference to the role of the health professional. Prevention and intervention strategies are emphasized. (Same as KINE 5510.)
5600. Health Promotion in a Multicultural Context. 3 hours. This course is designed to explore ethnic and cultural factors influencing disease prevention and health promotion among ethnic-cultural groups. Students will be able to design, implement and evaluate health promotion programs targeting multiethnic and multicultural groups.

5800. Studies in Health Promotion. 1-3 hours. Organized classes to satisfy program needs. Prerequisite(s): consent of department. Limited-offering basis; may be repeated for credit.

5850. Graduate Internship. 3 hours. A graduate internship affiliated with an approved community health promotion agency. Emphasis is on application of knowledge and skills to job roles, professional responsibilities, and program development and evaluation. The internship will involve a minimum of 320 consecutive hours to be completed within a semester. Prerequisite(s): completion of a minimum of 18 graduate hours in health promotion. Required of all graduate students without a minimum of 1 year experience in a community health agency.

5900-5910. Special Problems. 1-3 hours each. Open to graduate students who are capable of developing a problem independently. Problems chosen by the student and developed through conferences with the instructor.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

Kinesiology, KINE = 0575

4000. Psychology of Sport. 3 hours. A survey of the literature concerning the relationship of psychological processes and motor performance. Topics include motivation, communication, anxiety management, youth sports, concentration, confidence and group dynamics.

4050. Quantitative Analysis in Kinesiology. 3 hours. A study of measurement theory, instruments used to collect data and procedures for data analysis specific to exercise and sports. The use of computers for data analysis is included. Prerequisite(s): college algebra and CECS 1100 or the equivalent.

4200. Basic Athletic Training. 3 hours. Current practices in care and prevention of athletic injuries and medical problems related to athletics. Prerequisite(s): BIOL 2360.

4300. Exercise Leadership. 3 hours. This course integrates the scientific basis of exercise prescription with the practical skills of exercise prescription necessary for leadership of exercise in a variety of modes for groups of individuals. Prerequisite(s): KINE 3080.

4320. Exercise Testing and Prescription. 3 hours. Applied techniques for the measurement of exercise bioenergetics, neuromuscular performance, cardiorespiratory fitness and motor ability. Particular emphasis is given to the assessment of acute and chronic (training-induced) physiological responses arising from exercise training programs. Application and evaluation of test results will be used to develop exercise prescriptions for individuals participating in specific sports and training programs. Prerequisite(s): KINE 3080.

4410. Facilities, Equipment and Budget for Athletics. 3 hours. A study of facilities relative to quality and intended use. Equipment study to include construction, procurement and maintenance. Budgeting includes sources of monies and record keeping.

4500. Movement Tasks in Games, Sports and Rhythmic Activities. 3 hours. (2;1) Construction of movement tasks and progressions in rhythms and game skill activities.

4550. Issues in Movement Acquisition for Youth. 3 hours. Systems for promoting motor skill acquisition, assessment and analysis based on current, applicable issues in movement activity for youth; identification of principles, programming and inclusion of children with special needs in physical activity setting; and importance of maximal involvement of all learners in movement program for youth will be addressed. Prerequisite(s): KINE 3500 and 3550.

4860. Internship in Kinesiology. 12 hours. An in-depth practicum affiliation work in an approved agency selected from corporate, commercial or clinical settings. Emphasis is placed on application of knowledge and skills to actual job roles and responsibilities. Prerequisite(s): KINE 3090, 4000, 4050, 4300, 4320, overall grade point average of 3.0, and permission of the department.

5000. Supervision in Kinesiology. 3 hours. Principles of organization and administration for the supervision of kinesiology programs.

5020. Aging and Movement Control. 3 hours. An examination of the physical, behavioral, and psychological aspects of aging and how these changes affect movement and movement control processes.

5030. Life-span Motor Development. 3 hours. Explanation of changes in human motor patterns across the life span with emphasis on internal and external factors that relate to these changes. Issues, theories and research design problems are presented.

5050. Administration and Supervision of Recreation and Sport. 3 hours. Principles and procedures involved in the administration and supervision of recreation and sport. (Same as RECR 5050.)

5060. Areas and Facilities for Recreation and Sport. 3 hours. Design, construction, and maintenance of recreation and sport areas and facilities. (Same as RECR 5060.)

5090. Motor Behavior. 3 hours. An examination of the major behavioral processes and control mechanics underlying the learning and performance of motor skills. Principles in motor learning, motor behavior and motor control are systematically presented within a conceptual framework focusing on motor behavior and control theories, information processing, feedback, condition of practice, transfer, individual differences and life-cycle changes.

5100. Research Perspectives in Kinesiology, Health Promotion and Recreation. 3 hours. Research techniques and their application to the research process in kinesiology, health promotion and recreation. (Same as HLTH 5100 and RECR 5100.)
5130. Applied Sport Psychology. 3 hours. Psychological techniques and strategies for enhancing athletic performance are discussed, including imagery, arousal regulation, attentional control, goal setting and self-talk. Practical issues, ethical considerations and coach-athlete-organization interface are addressed. Prerequisite(s): KINE 5170. (Same as PSYC 5130.)

5140. Women and Sport. 3 hours. Examination of historical, psychological, sociological and physiological concepts and problems facing women. Specific attention will be given to the study of the sportswoman in the past and in a changing culture.

5150. Quantitative Procedures in Exercise and Sport Sciences. 3 hours. An in-depth study of analysis techniques necessary for scientific investigations in exercise and sport. Emphasis is placed on computer applications, advanced data analysis, techniques and interpretation of resulting analyses. Prerequisite(s): KINE 5100 or equivalent.

5160. Sports in American Culture. 3 hours. Role of sports and games in the American culture; their contributions to human welfare; implications of sports in a social order; personalities, institutions and cultural factors as they influence origin and development of sports and games.

5170. Sport and Exercise Psychology. 3 hours. Survey of the application of the science of psychology to sport and exercise settings. Topics include motivation, mental preparation strategies, arousal-performance relationship, exercise adherence, exercise and mental health. (Same as PSYC 5170.)

5180. Social Psychology of Sport. 3 hours. The effects of social psychological variables on motor behavior. Topics include social facilitation, social reinforcement, organized youth sports, socialization, group dynamics and leadership. (Same as PSYC 5180.)

5190. Neuromuscular Physiology of Exercise. 3 hours. An examination of the subcellular and macrocellular responses of the neuromuscular system to acute and chronic exposure to exercise. Special emphasis is given to the diagnostic and rehabilitative aspects of corrective exercise therapy as part of the health-care delivery system.

5200. Cardiovascular Physiology of Exercise. 3 hours. A study of the cardiovascular responses of normal and patient populations to acute and chronic bouts of exercise. Particular emphasis is given to the use of exercise as a treatment modality for cardiac- and pulmonary-impaired patients in a clinical environment.

5210. Administration Issues and Problems in Kinesiology. 3 hours. Analysis of issues and problems in administering programs in kinesiology.

5220. Professional Preparation in Kinesiology. 3 hours. Historical development of professional preparation in kinesiology and current guidelines for programs.

5230. Current Topics in Exercise Physiology and Health/Fitness Management. 3 hours. Current research topics and laboratory techniques with instrumentation to promote currency of thought and measurement technology in the areas of exercise physiology and/or health/fitness management. May be repeated for a maximum of 6 hours credit.

5240. Biomechanics of Sports Skills. 3 hours. Identification of the mechanical factors contributing to selected sports performances with qualitative analysis of skill objectives and contributing performance factors.

5250. Physiological Assessment in the Health Sciences. 3 hours. Evaluation of assessment techniques used in exercise physiology and health/fitness disciplines, including fitness assessment of working capacity, biochemical assays, advanced metabolic assessment, flexibility assessment and strength assessment. Prerequisite(s): KINE 5190 and 5200, or consent of department.

5260. Clinical Application of Exercise Physiology. 3 hours. Techniques of exercise prescription and cardiac evaluation in patients with coronary artery disease, including practical experience in a cardiac rehabilitation program and clinical exercise laboratory.

5270. Sport/Fitness Organization Management. 3 hours. Analysis of theoretical orientations to management functions in sport/fitness organizations. Current research and applications of theoretical orientations will be directed toward personnel, communication and marketing activities in sport/fitness enterprises.

5280. Facilities and Equipment in Kinesiology. 3 hours. Design, use, and maintenance of facilities in kinesiology and sport enterprises.

5290. Legal Aspects of Kinesiology. 3 hours. Analysis of the legal elements and responsibilities in kinesiology and sport management. Emphasis is placed on recognizing and solving legal problems in kinesiology and sport management.

5300. Implementing Health/Fitness Programs. 3 hours. Strategies, procedures and resources used in implementing health/fitness programs in corporate, commercial and clinical settings.

5310. Exercise and Fitness for Special Populations. 3 hours. Needs, limitations and program modification for special populations in fitness-related environments. Etiology, pathophysiology and exercise prescription for prevalent disorders.

5320. Stress Management for the Health Professional. 3 hours. Role of sports and games in the American culture; their contributions to human welfare; implications of sports in a social order; personalities, institutions and cultural factors as they influence origin and development of sports and games.
5860. Practicum, Field Problem or Internship. 1-6 hours. Supervised professional activities and experiences. May be repeated for credit.

5900-5910. Special Problems. 1-3 hours each. Open to graduate students capable of developing a problem independently. Problems chosen by the student and developed through conferences with the instructor or major professor.

5920. Research Problems in Lieu of Thesis. 3 hours. Research dealing with significant problems in physical education.

5940. Current Topics in Kinesiology. 3 hours. Designated capstone course to provide a culminating experience for students majoring in kinesiology.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

Physical Education – see Undergraduate Catalog

Recreation and Leisure Studies, RECR = 0590

4060. Leisure and Aging. 3 hours. Develops an awareness of the physiological, psychological, economic and sociological processes of aging that affect leisure behavior and involvement patterns. Development of activity programs for individuals served in community and institutional settings. Prerequisite(s): SOCI 4550 recommended. (Same as AGER 4060.)

4070. Management in Recreation, Sport and Leisure Services. 3 hours. Essential elements of management systems are reviewed. Application to recreation, parks, sports and leisure agencies is stressed. Emphasizes human resource management and the employment process, personnel policies and procedures, legal issues, supervision, performance appraisal and technological tools. Also focuses on fostering positive relationships with executive staff, boards and commissions, publics and consumers, special interest groups and volunteers.

4080. Legal Dimensions of Recreation, Parks and Leisure Services. 3 hours. An in-depth study of legal situations that the professional recreator may encounter in the delivery of parks, recreation and leisure services. This course examines five phases of legal areas: legal terminology and dimensions, concepts of liability, situations giving rise to litigation, case studies on program and activity areas, and insurance problems. Prerequisite(s): RECR 3070.

4100. Internship in Recreation, Sport and Leisure Agencies. 3-12 hours. An in-depth field experience in an approved recreation, sport, leisure service or therapeutic recreation agency. Emphasis is placed on application of knowledge and skills to actual job roles and responsibilities. Prerequisite(s): RECR 1950, 2150, 2550, 3050, 3450, 3500, 4050, 4080, 4150, 4160, 4180 and 4760; and consent of department. May be repeated for credit up to a maximum of 12 hours.

4150. Professional Development in Recreation, Sport and Leisure Services. 3 hours. Capstone course intended to provide a bridge from theory to professional practice. Determining a career direction, assuming professional roles and performing actual job responsibilities are emphasized. Preparation for an in-depth internship affiliation in an approved recreation, sport or leisure service agency is included. Prerequisite(s): consent of department.

4160. Evaluation of Leisure Services. 3 hours. Examination and application of models and methodologies for evaluating programs in leisure services delivery systems. Includes basic research methods and designs, statistical analyses, and technological skills required to design, implement and analyze special events, and recreation and sport programs and services.

4180. Planning, Designing and Maintaining Recreation, Park, Leisure and Sport Facilities and Areas. 3 hours. Includes basic elements, procedures and processes involved in planning, designing, developing and maintaining recreation, park, leisure and sport facilities and areas. Assessing and evaluating existing facilities and areas in terms of functionality, access standards and maintenance operations. Prerequisite(s): RECR 3050.

4190. Fiscal Administration in Recreation, Sport and Leisure Services. 3 hours. A comprehensive overview of the knowledge and abilities related to fiscal administration, generating alternative sources of revenues, and marketing strategies. Concepts include: taxes, bonds, pricing schemes, break-even analysis, cash flow, the budget process, foundations, donations, volunteers and target and service merchandising as each relates to the successful operation of a leisure services enterprise. Prerequisite(s): RECR 3050 or consent of department.

4200. Commercial Recreation. 3 hours. Study of the nature and function of recreation in commercial recreation settings. Survey of the development and management of commercial goods and services offered in the leisure market. Prerequisite(s): RECR 4190, or consent of department.

4340. Administration and Programming in Corporate and Recreational Sports Settings. 3 hours. A comprehensive overview of the knowledge and abilities related to the administration, programming and supervision of recreational and corporate sports systems such as: fitness, instructional sport, informal sport, intramurals, club sport and special events. Also examines the various administration aspects of these sport program systems such as: planning and evaluation, personnel, financial administration, facilities and equipment, risk management and marketing.

4560. Principles of Therapeutic Recreation. 3 hours. Study of current practices used in therapeutic recreation service design and delivery. Examines various service delivery systems, models of therapeutic recreation, and standards of practice. Presents a systematic approach to TR program planning. Prerequisite(s): RECR 3520 or consent of department.
4760. Facilitation Techniques in Therapeutic Recreation. 3 hours. In-depth study and application of facilitation techniques for clients in therapeutic recreation programs. A review of various techniques including leisure education, transactional analysis, reality therapy, behavior modification, values clarification, assertiveness training, relaxation therapy, reality orientation, remotivation, activities therapies and therapeutic relationships. Prerequisite(s): RECR 3450.

5010. Perspectives in Leisure. 3 hours. Employs the seminar format in enabling the student to develop a sound conceptualization of leisure services and achieve an insightful, functional understanding of recreation and leisure in our contemporary society through a number of perspectives, including historical, philosophical, sociological, psychological and administrative.

5050. Administration and Supervision of Recreation and Sport. 3 hours. Principles and procedures involved in the administration and supervision of recreation and sport. (Same as KINE 5050.)

5060. Areas and Facilities for Recreation and Sport. 3 hours. Design, construction and maintenance of recreation and sport areas and facilities. (Same as KINE 5060.)

5070. Psychosociological Dynamics of Leisure Behavior. 3 hours. An examination of the psychosociological dynamics of leisure behavior.

5080. Recreation Program Design. 3 hours. Theory and techniques for developing programmed recreation experiences. Topics include the program development cycle, marketing leisure services, the case study approach to program analysis, program design and planning, applying creativity to the program design process, and program supervision and evaluation.

5100. Research Perspectives in Kinesiology, Health Promotion and Recreation. 3 hours. Research techniques and their application to the research process in kinesiology, health promotion and recreation. (Same as HLTH 5100 and KINE 5100.)

5110. Critical Analysis of Professional Literature. 3 hours. Analysis and philosophical criticism of the literature in the student’s major area and other related fields. Extensive reading assignments and discussion of published and unpublished research.

5120. Concepts in Therapeutic Recreation. 3 hours. Study of the characteristics of illness and disease, including etiology, treatment procedures, functional disabilities and psychosocial adjustment, as they affect leisure participation. Overview of social and environmental elements that contribute to successful leisure functioning of individuals with disabling conditions.

5130. Principles of Therapeutic Recreation. 3 hours. Principles and techniques in the delivery of recreation services for special populations. Includes theoretical bases for therapeutic recreation services, as well as practical guidelines for the provision of such services.

5200. Dynamics of Commercial Recreation and Tourism. 3 hours. The origins, characteristics and societal impacts of commercial recreation and tourism. Examination of behavioral factors influencing participation, management considerations and research in commercial recreation and tourism. Local field trips required.

5800. Studies in Recreation. 1-3 hours. Organized classes specifically designed to accommodate the needs of students and the demands of program development that are not met by the regular offerings. Short courses and workshops on specific topics are organized on a limited-offering basis, to be repeated only upon demand. May be repeated for credit.

5850. Proseminar in Leisure Services Management. 3 hours. Concepts, research, analytical methods and literature drawn from the leading scholars in the various areas of the field.

5860. Practicum in Leisure Services. 3 hours. Supervised professional activities and experiences.

5870. Trends and Issues in Therapeutic Recreation. 3 hours. Concepts, research, analytical methods and literature drawn from the leading scholars in the various areas of the field to focus on current trends and issues in therapeutic recreation.

5900-5910. Special Problems. 1-3 hours each. Open to graduate students who are capable of developing a problem independently. Problems chosen by the student and developed through conferences with the instructor.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

Traffic Safety, DRED = 0535

4400. Driver Education I. 3 hours. Classroom and laboratory instruction designed to meet requirements of the State Board of Education for certification of driver education teachers.

4410. Driver Education II. 3 hours. Teaching techniques for classroom and laboratory phases of driver education with use of simulation and multimedia equipment. Prerequisite(s): DRED 4400.

4420. Driver Education III. 3 hours. First of two courses designed to meet Texas Education Agency standards for supervisory certification in driver education. Prerequisite(s): DRED 4400 and 4410.

4430. Driver Education IV. 3 hours. Second of two classes designed to meet Texas Education Agency standards for supervisory certification in driver education. Prerequisite(s): DRED 4400 and 4410.

5400. Advanced Driver and Safety Education. 3 hours. Major problems and current research in driver and safety education, for experienced teachers in this field. Laboratory and consultant services from local, state and national agencies.

5900-5910. Special Problems. 1-3 hours each. Open to graduate students who are capable of developing a problem independently. Problems chosen by the student and developed through conferences with the instructor.
Language  
see Undergraduate Catalog

Latin  
see Undergraduate Catalog

Library and Information Sciences

Students interested in a particular course during a particular period should inquire in advance. Other relevant courses are available at UNT and through cross-registration at other schools within the Federation of North Texas Area Universities.

School advising approval is required for course enrollment.

Library and Information Sciences, SLIS = 0720

4000. Introduction to Information Professions. 1 hour. History, roles and scope of information professions and practice. Basic concepts and issues including impact of information technology on the individual, intellectual freedom, privacy and diversity. Course activities emphasizing team building and leadership skills.

4080. Research Methods and Evaluation. 3 hours. Research principles and techniques; role of theories and hypotheses; experimental and non-experimental research; measurement and data collection; analysis and interpretation; quantitative methods and applications; problems in formulating research proposals and evaluating representative studies. Prerequisite(s) or corequisite(s): SLIS 4710 or equivalent.

4090. Practice Work in Information Agencies. 3 hours. Supervised practice work and field study (120 clock hours minimum) in a cooperating learning resources center or information agency, plus seminar conferences and summary report. Prerequisite(s): 12 hours of prior courses in the school and application early in prior semester. For students without prior field experience. Pass/no pass only.

4095. Cooperative Education. 3 hours. (0;0;20) Supervised work in a job related to student’s career objective. Prerequisite(s): consent of school. Pass/no pass only. Cannot be used for degree credit.

4200. Basic Information Organization. 4 hours. Basics of information organization and presentation for facilitating access. Concepts and problems of human information behavior, classification and categorization related to information organization. Database technology, structure and design. Standards for information organization, data representation and information exchange. Systems for organizing information and facilitating information access in various information use environments.

4205. Introduction to Indexing and Abstracting. 3 hours. Applications in different types of information systems and agencies. Use of database retrieval software. Indexing language formulation, macros programming, and design for user support. Planning and implementing representative programs. Corequisite(s): SLIS 4200 or 4210 and 4710, or consent of school.

4208. School Library Organization and Media. 3 hours. Cataloguing and classification of print and nonprint collections. MARC records. School library automation systems and their management. Media and media services, including media services to special populations. Representative problems and library experiences. Corequisite(s): SLIS 4001.

4210. Information Organization and Records Control. 3 hours. Descriptive cataloging, subject analysis, classification and control of information resources of all kinds; Anglo-American Cataloging Rules; Dewey Decimal and Library of Congress classification systems; subject headings; organization, functions and use of catalogs and classification systems; principles of information indexing and retrieval; use of bibliographic databases; representative problems and practice. Prerequisite(s): SLIS 4200 and 4710, or consent of school.


4300. Administration of Information Agencies. 3 hours. Role, functions and development of principal kinds of information centers and agencies. Management principles and practices; standards and evaluation; resources and services; facilities and equipment; planning, staffing and reporting; public relations; budgeting and financial procedures; policy making; social contexts and backgrounds; professional perspectives. Corequisite(s): SLIS 4710 or consent of school.

4400. Evaluation and Development of Information Resources. 3 hours. Principles and techniques of selecting and acquiring information resources of all kinds; development and maintenance of collections; criteria and selection aids; national and trade bibliographies; on-line searching; publishers and publishing; censorship problems and intellectual freedom; representative problems and practice.

4420. Information Resources for Children. 3 hours. Survey of print and non-print materials, including multicultural/multietnic materials; utilization practices and selection; curricular correlations and enrichment; recreational and developmental needs; children’s services and programs; wide reading and use of literature and other materials for children from preschool through middle-school years.

4430. Information Resources for Young Adults. 3 hours. Survey of print and non-print materials, including multicultural/multietnic materials; utilization practices and selection; curricular correlations and enrichment; recreational and developmental needs; young adult services and programs; wide reading and use of literature and other materials for young adults from upper middle school through high school years.
4600. Basic Information Access and Retrieval. 4 hours. Basic principles and techniques of information retrieval and access services. Survey of research in information seeking behavior and user interaction. Introduction to systems of access, search and retrieval skills and collection management. Study of evaluation methods for all formats of resources, services and user satisfaction.

4615. Electronic Information Services. 3 hours. Basic concepts of electronic information services and databases in different fields; conducting on-line searches and evaluating services. Supervised practical experience. Prerequisite(s): SLIS 4710 or consent of school. Corequisite(s): SLIS 4600 or consent of school.

4620. Information Resources in the Humanities. 3 hours. Information resources, methods and services to meet access needs in the humanities. Literature searching and communication patterns in individual fields. Role of professional organizations and government. Representative problems and practice. Prerequisite(s): SLIS 4600 or consent of school. Corequisite(s): SLIS 4615 or consent of school.

4630. Information Resources in Sciences and Technology. 3 hours. Information resources, methods and services to meet access needs in science and technology. Literature searching and communication patterns in individual fields. Role of professional organizations and government. Representative problems and practice. Prerequisite(s): SLIS 4600 or consent of school Corequisite(s): SLIS 4615 or consent of school.

4640. Information Resources in the Social Sciences. 3 hours. Information resources, methods and services to meet access needs in the social sciences. Literature searching and communication patterns in individual fields. Role of professional organizations and government. Representative problems and practice. Prerequisite(s): SLIS 4600 or consent of school. Corequisite(s): SLIS 4615 or consent of school.

4685. Information Resources in Culturally Diverse Communities. 3 hours. Information resources, methods and services to meet access needs of ethnic cultural minorities. Issues in the provision of information services to ethnic cultural minority communities. Study of the needs and cultural milieu of these communities. Materials and methods for serving these groups.

4710. Introduction to Information Technology. 3 hours. Basic concepts of information and its role in an information society. Includes mechanisms of information processing, information transfer, and applications of computers and other information tools in various disciplines and fields.

4720. Multi-Media Production. 3 hours. Non-book resources and services in different kinds of libraries and information/media centers. Includes preparation and organization of materials, instructional design and materials production, and the use and maintenance of related equipment. Supervised laboratory experience. Prerequisite(s): SLIS 4710 or consent of school.

4960-4970. Information Science Institute/Seminar. 1-6 hours each. Special institute courses and seminars. Prerequisite(s): consent of school. May be repeated for credit as topics vary.

5000. Introduction to Information Professions. 1 hour. History, roles and scope of the information professions. Basic concepts and issues including impact of information technology on the individual, intellectual freedom, privacy and diversity. Course activities emphasizing team building and leadership skills.

5020. Economics of Information. 3 hours. Information as an economic good and resource. Equity and distribution of information as public good and as a commodity. Economics of the information industry. Supply and demand of information and its pricing. Micro- and macro-economic information indication and studies in national economics.

5030. Seminar in Foundations, Trends and Perspectives. 3 hours. Foundation topics in library and information sciences. Special perspectives and aspects within the field and related areas. Background developments and social contexts. Major trends, issues and problems of present and historical interest. Individual investigations of special aspects and topics. Prerequisite(s): consent of school. May be repeated for credit as topics vary.

5040. Information Behavior. 3 hours. Human cognitive behavior in seeking, searching for, browsing, evaluating, and using information. Concepts and contexts of types of knowledge and information need. Professional methods for and practice in user needs assessment, user profiling, and mediation processes for purposes of developing user-centered information systems and services.

5070. Development of Libraries, Publishing and Communication Media. 3 hours. Historical backgrounds and growth of modern libraries and information centers. Related development of printing, publishing and communication media. Social, cultural and technological dimensions. Focus on topics and problems of continuing interest and contemporary significance.

5080. Research Methods and Analysis. 3 hours. Principles, techniques and areas of research. Basic research designs and measurement problems. Evaluation of representative studies. Quantitative methods and applications. Prerequisite(s) or corequisite(s): SLIS 5710 or equivalent.

5081. Research Design and Analysis. 3 hours. Multifactor designs and problems in experimental, survey and documentary research. Measurement, testing and index construction. Multivariate and regression analysis. Problems in causal inference and generalization. Prerequisite(s): SLIS 5080 and 5710, or consent of school.

5082. Seminar in Research and Research Methodology. 3 or 6 hours. Special topics in research methodology. Research proposal development. Directed research study. Prerequisite(s): consent of school. May be repeated for credit as topics vary.

5090. Practicum and Field Study. 3 hours. Supervised practice work and field study (120 clock hours minimum) in a cooperating library, learning resources center or information agency, plus seminar conferences and summary report. For students without prior field experience. Prerequisite(s): admission to candidacy, application for practicum early in prior semester and appropriate administration course or type-of-system course (may be taken concurrently). Not counted for degree credit. Pass/no pass only.
5095. Cooperative Education. 3 hours. Supervised work in a job related to student’s career objective. Prerequisite(s): consent of the practicum director and the cooperative education department. Pass/no pass only; cannot be used for degree credit.

5200. Introduction to Information Organization. 4 hours. Principles, concepts, and practices of information organization and presentation. Concepts and problems of human information behavior, classification, and categorization related to information organization. Database technology, structure and design. Standards for information organization, data representation, and information exchange. Systems for organizing information and facilitating information access in various information use environments.

5205. Information Indexing, Abstracting and Retrieval. 3 hours. Analysis of indexing and retrieval systems. Manual and machine indexing and abstracting. Computer-based systems. File organization and maintenance; information representation and coding; storage and retrieval technology; natural language processing; thesaurus construction; searching strategies. Systems design, operation and evaluation. Corequisite(s): SLIS 5200 or 5210 and 5710, or consent of school.

5206. Information Retrieval Design. 3 hours. Study of design considerations in computer-based information retrieval systems, including conventional inverted file systems using Boolean logic and automatically indexed vector-oriented systems. Evaluation of information systems in the light of user and system criteria. Prerequisite(s): SLIS 5200 or 5210, and 5205 or 5615, or consent of school.

5208. Learning Resources Organization and Media. 3 hours. Organization of print and nonprint collections, including descriptive cataloging. Anglo-American Cataloging Rules, Dewey Decimal Classification, Library of Congress and Sears Subject Headings, and MARC records. Media and media services, including media services to special populations. Library automation systems and their management. Prerequisite(s): SLIS 5710 or consent of school.

5210. Organization and Control of Information Resources I. 3 hours. Descriptive cataloging and subject analysis of different kinds of information resources. Anglo-American Cataloging Rules; Dewey Decimal and Library of Congress classification systems; vocabulary control; subject headings; principles and techniques of catalog construction, maintenance and use; information indexing and retrieval; use of on-line databases; representative research, problems and practice. Prerequisite(s): SLIS 5200 and 5710, or consent of school.

5220. Organization and Control of Information Resources II. 3 hours. Development of cataloging and classification systems. Problems in classification and subject headings. Thesaurus construction and special classification systems. Treatment of serial publications, audiovisual resources and other special materials. Use of on-line databases. Prerequisite(s): SLIS 5210 and 5710, or consent of school.

5223. Metadata and Networked Information Organization/Retrieval. 3 hours. Representation, organization and retrieval of networked information resources (NIR) using various forms of metadata. Examination and evaluation of key metadata schemes for representing and organizing NIR. Identification and use of metadata creation tools to build and manage metadata repositories. Explore implications for retrieval of NIR through search engines that exploit metadata. Prerequisite(s): SLIS 5200 or consent of school.

5225. Serial Publications and Serial Records Management. 3 hours. Serial publications and the tools useful in their control. Acquisition, processing, cataloging, housing, servicing and use of serials. Serial records management: online systems; administration of serials departments; management of serials collections. Prerequisite(s): SLIS 5210 or consent of school. Prerequisite(s) or corequisite(s): SLIS 5710.

5230. Records Management. 3 hours. Operations in preparation, dissemination, organization, storing and retrieval with emphasis on records control and utilization. Preservation and security problems; retention, transfer and disposal. Planning and supervising records management programs. Departmental functions and organization. Data-processing applications and on-line systems.

5290. Special Collections and Archives. 3 hours. Selection, acquisition, preservation and use of special materials of all kinds, including special subject and form materials, rare materials and manuscripts, archival materials and other materials requiring special control and handling. Organization and administration of special collections and archives. Prerequisite(s): consent of school.

5295. Preservation. 3 hours. Introduction to preservation management and techniques. Lectures and discussions of management practices, including stack management, collection development decisions and disaster preparedness. Laboratory work, including identification of book structures and hands-on experience with such basic preservation techniques as paper cleaning, paper mending and protective housing.

5300. Management of Information Agencies. 3 hours. Management principles and practices. Problem-solving, public relations and program development. Libraries and information centers and their social and political context. Coping with change. Facilities and equipment. Representative research and data analysis. Corequisite(s): SLIS 5710 or consent of school.

5302. Advanced Management of Information Agencies. 3 hours. Advanced topics in administration of different types of libraries, information systems and related agencies; planning and program development; personnel and financial management; legal problems and political relations; problem-solving and decision making; project and systems management; funding and support; issues and trends. Individual investigation of selected problems. Prerequisite(s): SLIS 5300 and 5710, or consent of school.

5303. Financial and Human Resource Management in Information Agencies. 3 hours. Problems and topics in personnel and financial management. Recruitment, training and supervision. Work environments; position and staff evaluation; wage and salary management; collective bargaining; funding; budgeting and accounting systems; expenditure and income control; audits; inventory control; insurance. Current trends and case studies of common problems. Prerequisite(s): SLIS 5300 and 5710, or consent of school.
5305. Systems Analysis and Design. 3 hours. Tools and techniques of systems analysis, design and evaluation. Relationship of design to program planning and services. System objectives and performance; system development; effectiveness and efficiency measures; cost analysis; operations management and research.

5306. Project Management for Information Systems. 3 hours. Managing the process of planning, developing, implementing and evaluating systems in libraries and information centers of all types and sizes. Planning, defining requirements, developing requests for proposals, evaluating alternative systems, and locating and hiring consultants. Prerequisite(s): SLIS 5710 or consent of school.

5320. Public Libraries. 3 hours. Problems of organization and management of public libraries and urban/rural library systems; their resources, functions and services. Related municipal, regional and state information agencies and services. Federal and state programs; development and trends. Individual investigation of major issues and topics. Prerequisite(s): SLIS 5300 or consent of school.

5330. Academic Libraries. 3 hours. Problems of organization and management of university, college and community college libraries; their resources, functions and services. Federal and state programs; development and trends. Individual investigation of major issues and topics. Prerequisite(s): SLIS 5300 or consent of school.

5340. Learning Resources Centers and Services. 3 hours. Role and functions of library/media centers in school, college and other settings. Problems of organization and management. Kinds of learning resources and services. Federal and state programs; development and trends. Individual investigation of major issues and topics. Prerequisite(s): SLIS 5300 or consent of school.

5360. Special Libraries and Information Centers. 3 hours. Study of selected types of special libraries, information systems and related organizations and their historical development, administration, resources, functions and services. Students are introduced to the problems of operating small libraries with unusual clienteles, consulting and the development of new information centers. Prerequisite(s): SLIS 5300 or consent of school.


5366. Law Library Management. 3 hours. Survey of the history and development, characteristics and distribution of law libraries in the United States. Role and function of law libraries or collections in academic, government or private institutional contexts. Problems of law library administration, including organization, personnel and financial management, library planning, marketing and evaluation. Study of tools for collection development, collection development plans and technical processes. Introduction to the profession of law librarianship. Prerequisite(s): SLIS 5300 or consent of school.

5367. Music Libraries and Information Services. 3 hours. Problems of organization and management of music libraries. Music reference sources and information services. Selection, acquisition, organization and use of music materials. Prerequisite(s): SLIS 5300 or consent of school.

5369. Seminar in Special Types of Libraries and Information Systems. 3 hours. Intensive study of selected types of special libraries, information systems and related organizations; their development, administration, resources, functions and services. Individual investigation of selected types of libraries and information systems, and of related issues and trends. Prerequisite(s): consent of school. May be repeated for credit as topics vary.

5390. Technical Services in Libraries and Information Centers. 3 hours. The management of technical processes in libraries and information centers of all types and sizes: principles, processes and practices, issues, trends and research in such technical areas as acquisitions, cataloging, circulation, serials control, database maintenance, library security, reserve collections and materials preparation. Prerequisite(s) or corequisite(s): SLIS 5200 and 5710, or consent of school. Corequisite(s): SLIS 5400.

5400. Information Resources Development. 3 hours. Principles and methods of evaluating, selecting and acquiring different kinds of information resources. Development and maintenance of information collections. Bibliographic tools and on-line databases. Searching and verification; publishers and publishing; censorship issues; acquisition processes. Representative research, problems and practice.

5405. Advanced Information Resources Development. 3 hours. Advanced study of current problems and practices in collection development and management, with emphasis on evaluation techniques and the development of cost-effective policies and procedures for maintaining collections. Individual investigation of selected problems and practices. Prerequisite(s): SLIS 5400.

5410. Adult Materials and Reading Interests. 3 hours. Reading interests and behavior of adults, including younger and older adults. Selection and use of books and other materials for recreation and self-development. Adult programs and services, including reading guidance. Wide reading and use of literature and non-print materials in different fields.

5420. Literature for Youth. 3 hours. Survey of literature and media, including multicultural and multiethnic materials. Wide reading and use of materials for children and young adults. Corequisite(s): SLIS 5000 and 5710 or its equivalent, or consent of instructor.

5425. Seminar in Trends and Issues in Literature for Children and Young Adults. 3 hours. Identification and analysis of trends and current issues in literature for children and young adults; examination of issues raised in journal literature, including popular and scholarly publications; comparative analysis of current issues and their representation in recently published materials. Additional focus on issues and trends in literary presentations of selected ethnic and religious groups. Comparison of film treatment of works with their original literary presentation.
5430. Information Services for Youth. 3 hours. Utilization practices and selection. Literature interests and guidance; curricular correlations and developmental needs. Extensive focus on either children or young adult programs and services. Corequisite(s): SLIS 5000 and 5710 or its equivalent, or consent of instructor.

5440. Youth Programs and Storytelling. 3 hours. Development, organization and administration of youth services and programs. Program planning and presentation; surveying needs and interests; relations of school and public libraries; extension activities. Storytelling and book talks for children, young adults, parents and others. Story sources and selection; multimedia presentations. Supervised field experience.

5450. Rare Books. 3 hours. Introduction to principles and practices of rare book librarianship. Bibliography and its applications to identification and evaluation of rare materials. History of printing and illustration. Administration of rare book or special collections, including bibliographic and physical access, reference, evaluation techniques, cataloging, public relations and personnel.

5460. Publishing and Other Information Industries. 3 hours. Structure, characteristics and trends of contemporary publishing and other information industries. Editorial development, production, marketing and distribution of information materials and services. Legal and economic considerations. Some attention to international distribution of information. Individual investigation of selected problems.

5600. Introduction to Information Access and Retrieval. 4 hours. Epistemological foundations of information use. Basic principles and techniques of information retrieval and access services. Survey of research in information seeking behavior and user interaction. Introduction to systems of access, search and retrieval skills, and collection management. Study of evaluation methods for all formats of resources, services and user satisfaction.

5610. Advanced Information and Access Services. 3 hours. Advanced problems and techniques in information service, on-line and CD-ROM systems, and literature searching and synthesis. Prerequisite(s): SLIS 5600 or consent of school.

5611. Seminar in Information Services and Programs. 3 hours. Intensive study of selected types of information resources, services and programs for individuals and groups, such as reference and referral services, advisory and educational services, bibliotherapy and counseling, fee-based services and programs, research advisement and consulting, and storytelling and youth programs. Planning services and programs; issues and trends. Individual investigation of selected types of services and related problems. Prerequisite(s): consent of school. May be repeated for credit as topics vary.

5615. Electronic Databases and Information Services. 3 hours. Development and use of on-line information services. Study of available databases in different fields. Conducting on-line searches; client interviews; developing, promoting and evaluating on-line services; current trends. Supervised practical experience. Prerequisite(s): SLIS 5710 or consent of school. Corequisite(s): SLIS 5600 or consent of school.

5620. Information and Access Services in the Humanities. 3 hours. Information resources, methods, needs and services in the humanities. Comparative study of individual fields. Communication patterns and bibliographic organization. Role of professional organizations and government. Representative problems and practice. Prerequisite(s): SLIS 5600 or consent of school. Corequisite(s): SLIS 5615 or consent of school.

5630. Information and Access Services in Science and Technology. 3 hours. Information resources, methods, needs and services in science and technology. Comparative study of individual fields. Communication patterns and bibliographic organization. Role of professional organizations and government. Representative problems and practice. Prerequisite(s): SLIS 5600 or consent of school. Corequisite(s): SLIS 5615 or consent of school.

5637. Medical Informatics. 3 hours. History of medical information. Biomedical communication. Types of information resources and services related to the transfer of information in the health sciences. Computer applications to health sciences libraries. Analyses of current issues in the health care field and their relationship to health sciences libraries and information centers. Corequisite(s): SLIS 5615 or consent of school.

5640. Information and Access Services in the Social Sciences. 3 hours. Information resources, methods, needs and services in the social sciences. Comparative study of individual fields. Communication patterns and bibliographic organization. Role of professional organizations and government. Representative problems and practice. Prerequisite(s): SLIS 5600 or consent of school. Corequisite(s): SLIS 5615 or consent of school.

5646. Information and Access Services in Business. 3 hours. Introduction to information service for business as a discipline and in practice. Characteristics of information service to a specific, diverse user community. Introduction to and development of print and electronic forms of information relevant to the business community’s information needs. Prerequisite(s): consent of school.

5647. Legal Information and Access Services. 3 hours. An introduction to the bibliographic organization of legal literature and to techniques of legal research, including the use of automated legal research databases. Lectures, readings, seminar discussions and problem sets focus on U.S. legal materials, primarily using federal law publications as examples.

5650. Multimedia Resources and Services. 3 hours. Selection, organization and use of films, filmstrips, video recordings, phonorecords, microforms, pictures, maps, kits, realia, vertical file items and other materials. Evaluation and development of media collections. Current developments in media and media services. Computer applications and reprography. Representative problems and supervised laboratory experience. Prerequisite(s): SLIS 5210 and 5710, or consent of school.
5660. Government Information and Access Services. 3 hours. Information resources and services of the United States government; their nature, use, acquisition and organization. Includes some study of the information resources and services of municipal and state governments, the United Nations and selected foreign countries. Prerequisite(s): SLIS 5600 or consent of school. Corequisite(s): SLIS 5615.

5670. Seminar in Information Resources and Services in Special Fields. 3 hours. Intensive study of resources and services in selected special fields. Problems in subject specialization. Prerequisite(s): consent of school. May be repeated for credit as topics vary.

5680. Seminar in Information Resources and Services for Special Clients and Classes. 3 hours. Intensive study of resources and services in selected special clientele and classes of users. Problems in clientele specialization. Prerequisite(s): consent of school. May be repeated for credit as topics vary.

5685. Information Resources and Services in Culturally Diverse Communities. 3 hours. Seminar in information resources and services for ethnic cultural minorities. Issues in the provision of information services to ethnic cultural minority communities. Study of the needs and cultural milieu of these communities. Materials and methods for serving these groups.

5690. Information Networks and Cooperative Systems. 3 hours. Role, functions and growth of cooperative systems and consortia; development of information networks; their services, legal bases, political setting, financing and management; issues and trends. Individual investigation of selected problems.

5710. Information Technology. 3 hours. Mechanisms of information processing, information transfer, and applications of computers to library and information center functions. Policy issues relating to technology in information delivery. Includes application of the following technologies in libraries and information centers: major computer operating systems, database management systems, computer graphics, Internet resources, telecommunications, computer networking, etc.

5711. Internet Applications, Services, and Management for Information Professionals. 3 hours. The technology, applications, resources, and service opportunities of the Internet and the networked environment. Development of awareness, understanding, and knowledge of the Internet from the perspectives of technology, standards, content, organization, policy, and users. Conceptual and practical aspects related to the development and management of networked applications, networked resources, and networked services for use in information environments and information-based organizations. Prerequisite(s): SLIS 5710 or consent of school.

5712. Horizon Technologies for Library and Information Centers. 3 hours. Students explore new and future information technology developments that are likely to have an impact on the delivery of information services in libraries and information centers. The nature of technological change, methods of forecasting and researching directions of change, social and organizational issues raised by new technologies and strategies for managing change are examined using readings, case studies, and lectures.

5713. Telecommunications and Information Professionals. 3 hours. A foundation course concerned with digital and analog forms of electronic communications, design and performance of networks and their relationship to the provision of information services. Emphasis on management issues for libraries and information agencies.

5714. Website Development. 3 hours. This course is designed to meet the needs of government, education, and industry for entry level personnel capable of establishing a website, composing text and graphic files for the site, writing scripts for the site for interactive applications, installing search engines, and creating reports on site usage. Prerequisite(s): SLIS 5711 or 5713, or consent of school.

5715. Topics in Digital Imaging for Information Professionals. 3 hours. Designed to provide each student in the digital image management program of study an opportunity to be involved with the production of digital images; the creation, maintenance and management of digital information databases; intellectual property and copyright issues; the use and management of advanced network and information technologies including web site design and maintenance; and the client markets of libraries, archives, information centers and museums. Prerequisite(s): consent of school. May be repeated for credit.

5716. Web Administration for Information Professionals. 3 hours. Designed to meet the need of the information industry for entry-level personnel capable of managing numerous web sites on multiple platforms. Management is characterized by the ability to impose stylesheets, security measures, indexes, file headers and tailers, logs and report on server usage, customization of error messages, and hardware and software aliases and proxies. Additionally, students work in teams to create and modify sites utilizing collections developed by the school in previous courses and sponsored projects.

5717. Dynamic WWW Control Structures. 3 hours. Designed to meet the need of the information industry for entry-level personnel capable of endowing web sites with interactive applications, with emphasis on string-handling, searching, and organization. Additionally, students work in teams to create and modify multimedia document sites utilizing image collections and document collections developed by the school in previous courses and sponsored projects.

5718. Agent Implementation and Control for Information Professionals. 3 hours. Designed to meet the need of government and industry for entry-level personnel capable of implementing and managing search agents and search robots for intranets and the internet in general. Management is characterized by the ability to build simple agents in Perl, Javascript, etc.; to locate, install, and modify web-based agents provided at various sites; and to edit and filter agent results through document classification and automated text processing. Additionally, students work in teams to create and modify sites utilizing collections developed by the school in previous courses and sponsored projects.

5720. Instructional Materials Production and Use. 3 hours. Role of instructional materials in media centers and settings of various types. Emphasizes instructional design and production techniques using different media and equipment, including computers. Supervised laboratory experience. Prerequisite(s): SLIS 5710 or consent of school.
5730. Microcomputer Applications for Information Management. 3 hours. Use of microcomputers and applications software to meet library and information center needs. Focus on microcomputer problem-solving to apply appropriate hardware, communications, software and resource management concepts; operations and management of microcomputer use. Prerequisite(s): SLIS 5710 or consent of school.

5750. Managing Library Automation Projects. 3 hours. Planning, acquisition, development and installation of computer-based systems in libraries of all types and sizes, oriented around activities necessary for effective library automation projects. Project planning; project approval and start-up; and planning and management of product and service procurement, development of system components, and system installation and maintenance. Prerequisite(s): SLIS 5710 or consent of school.

5900-5910. Special Problems. 1-3 hours each. Supervised individual or small group study of special problems or topics not otherwise covered by regular course offerings. Prerequisite(s): consent of instructor and dean of school. May be repeated for credit as topics vary.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of school. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

5960-5970. Library and Information Sciences Institute or Seminar. 1-6 hours each. Special institute courses and seminars. Prerequisite(s): consent of school. May be repeated for credit as topics vary.


6220. Information Retrieval Theory. 3 hours. The theoretical foundations of information retrieval, including the mathematical modeling of file structures and searching techniques. The adaptation of communication models from various disciplines.


6350. Management of Information Resources in Organizations. 3 hours. Role of information in decision making, and management as an information-intense activity. Information and productivity. Information audit in organizations. Special issues and problems in managing information in different organizational environments.

6660. Readings in Information Science. 3 hours. Broad reading in a defined area of information science related to the student’s research interest. Requires the critical evaluation of sources with particular emphasis on methodological issues. Prerequisite(s): reading proposal requires prior approval by instructor and adviser.

6700. Seminar in Communication and Use of Information. 3 hours. The nature of information as a phenomenon and of the communication processes. Conceptual linkage to treatments in various fields. The role of information and communication in individual, social and institutional behavior.

6720. Human Information and Communication Behavior. 3 hours. Variety of human information and communication behaviors, why people engage in them and how they can be described and understood. Relation to problems of effectiveness and evaluation of communication in information provision.

6740. Scholarly and Scientific Communication. 3 hours. Process by which scholarly, scientific and technical ideas and innovations are communicated. The role of formal and informal communication in the development of knowledge. The process of scholarly and scientific publishing. The role of information in the advancement of science, technology, social sciences, humanities and the arts.

6880. Seminar in Information Science and Technology. 3 hours. Advanced topics and problems in information science and technology. Individual investigation of selected problems. Prerequisite(s): consent of school. May be repeated for credit as topics vary.

6900-6910. Special Problems. 1-3 hours each. Supervised individual or small group study of special problems or topics not otherwise covered by regular course offerings. Prerequisite(s): consent of instructor and dean of school. May be repeated for credit as problems and topics vary.

6930. Information and Communication Measurement. 3 hours. Advanced topics and problems in information and communication. Includes measures from such physical sciences as entropy and such social sciences as impact measures. Bibliometric and scientometric empirical laws and patterns. Measurement in communication science.

6940. Seminar in Research and Research Methodology. 1-12 hours. Advanced topics in research methodology. Research proposal development. Directed research study. Prerequisite(s): consent of school. May be repeated for credit as topics vary.

6945. Doctoral Seminar in Information Issues. 1 hour. Discussion of general issues and specific research efforts in information science and related fields by faculty, students and guests. Presentation of dissertation proposals and completed dissertations by students.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of school. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

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6660. Readings in Information Science. 3 hours. (0;0;3) Broad reading in a defined area of information science. Topics vary. Course may be repeated for credit.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of school. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.
4660. International Management Perspectives. 3 hours. A comprehensive framework is used to study the management of multinational operations in cross-cultural environments with a focus on the decisions that managers must make. Topics include strategic planning, organization, human resources, operations management, entrepreneurship and ethics.

4800. Internship. 3 hours. Supervised work in a job related to student’s career objective. Prerequisite(s): consent of department. Pass/no pass.

4810. Purchasing and Materials Management. 3 hours. From original planning through delivery of finished products; purchasing, inventory control, receiving, stores, production control, traffic and materials handling.

4820. Manufacturing Planning and Control. 3 hours. In-depth coverage of the function of production planning and control, including such topics as forecasting, materials requirements planning, capacity planning, master production scheduling, forecasting, production activity planning, and control and project management. Prerequisite(s): MGMT 3830.

4830. Productivity and Quality Management. 3 hours. Coverage of the topics related to quality science and quality improvement. Topics include acceptance sampling, TQM, process control and their impact on productivity. Prerequisite(s): MGMT 3830.

4840. Compensation and Benefits Administration. 3 hours. Wage and salary administration in public and private organizations; determinants of general wage and salary levels and structures; total compensation systems; interrelationship among employee performance, intrinsic and extrinsic rewards, perceived equitable payments, and employee satisfaction. Open to non-business majors.

4850. Organizational Design and Change. 3 hours. Organizational design is a primary management tool for organizing business processes and developing organizational capabilities. The course focuses on developing an understanding of the basics of organizational design, how to utilize organizational design principles to manage change, and how to keep the design aligned with the firm and the demands to which it must respond. The design and development effort includes study of organizational structures, the basic work patterns of the organization, organizational cultures, managerial roles, and the use of teams.

4860. Management of Projects and Systems. 3 hours. Investigation and study of the role of projects in contemporary organizations. Includes a presentation of the technical aspects pertaining to the management of complex projects and systems starting with conceptual design and advanced development, and continuing through detailed design, production and termination. Emphasis is placed on integrative concepts rather than isolated methodologies. Prerequisite(s): MGMT 3830.

5070. Management Issues. 1.5 hours. The basic concepts in managing the complete flow of materials that represent a supply chain from suppliers to customers. Emphases within the module are placed on production concepts with business wide applications, determining demand, transformation processes used to satisfy demand, and finally managing the supply activity supporting the transformation processes.

5110. Professional Readings in Executive Administration. 3 hours. Designed to acquaint the student with classical and contemporary writings in business administration through individually developed reading lists to supplement the student’s background.

5120. Managing Organizational Design and Change. 3 hours. Examination of the development of organizational competencies and capabilities through the study of the theory and tools related to organizational design and change. Emphasis is placed on the use of horizontal and vertical linkage mechanisms that provide the organization with the flexibility to adapt to a rapidly changing competitive environment. Definition of management roles and the use of teams are emphasized in the change management process.

5140. Organizational Behavior and Analysis. 3 hours. Research emphasis in organizational behavior stressing organization-people linkages and interrelationships, including selection, orientation and training; job design and reward systems; supervision; formal participation schemes; appraisals and development, organizational structure and design, communications, control and conflict resolution. Examination of behavioral science methodologies and strategies. Applications to tangential areas of organization theory, development, planning and implications for management and employee relations.

5210. Human Resource Management Seminar. 3 hours. A study of the creation and implementation of human resource policies in public and private organizations. Topics include employment, placement and personnel planning; compensation and benefits; employee and labor relations; training and development; health, safety and security. Designed for non-business graduate students and business graduate students with limited or no background in personnel management.

5220. Management Seminar. 3 hours. Development of philosophy, strategy and tactics in managing an enterprise. Administrative processes common to all enterprises, including variations needed to meet different situational requirements. Methods of study include extensive reading, exploratory research and seminar discussion.

5240. Project Management. 3 hours. Analysis and application of project management techniques and processes to large scale, complex and unique projects. Topics include project selection; planning and organization; negotiation and conflict resolution; budgeting and cost estimation; scheduling; resource allocation; monitoring and control; project auditing; and termination. Prerequisite(s): MGMT 5070 or equivalent.

5250. Alternative Dispute Resolution. 3 hours. Theory and practice of voluntary arbitration. Nature of disputes; nature and philosophy of voluntary arbitration; scope of the arbitrator’s authority; selection of the arbitrator; the agreement to arbitrate; rules and procedures of the hearing; the award; legal status of arbitration; current problems in arbitration; and other selected issues and problems. Mock arbitration hearings and case analysis are integral parts of the course.

5260. Employment, Placement and Personnel Planning. 3 hours. Review of the basic elements of employed performance, with analysis of the factors involved in employment, placement and personnel planning. This course blends theory and practice so the student may better understand the policies and procedures required for recruitment selection and personnel planning.

5280. Analysis and Design of Operations System. 3 hours. Planning, analysis, and design of operating systems, including functions such as forecasting, inventory management, facility location and layout, aggregate planning, scheduling, and supply chain management. Appropriate decision making tools and processing are emphasized.

5300. Entrepreneurship and Venture Management. 3 hours. The creation of new business enterprises and the expansion of current enterprises through the venture. Topics include assessment of entrepreneurial characteristics, the entrepreneurial team, generation and screening of venture ideas, market analysis and technical analysis.

5330. Communication Theory. 3 hours. Interdisciplinary approach to communication as related to the business organization. Various areas that contribute to an understanding of the process of communication: business administration, the several behavioral sciences, semantics and linguistics. Applications to organizational behavior and development.

5510. Health Care Delivery Systems. 3 hours. Examines the evolution, structure, function and issues in the health care delivery system, considers the concepts and processes of health and illness; presents the economics of health care and the basic issues in health care policy; and provides a comprehensive introduction to the organization and management of health service institutions.

5520. Management of Health Service Organizations I. 3 hours. Provides advanced study of the unique operational applications of business/managerial theory, methodology and best practice to acute, home and long term care health service institutions, including facilities design and management, financial analysis and management, systems analysis and evaluation, application and management of information technology, assessment of health needs and marketing, quality improvement, human resource management and the legal/ethical aspects of health care.

5530. Operation and Management of Physician Practice Organizations. 3 hours. Provides advanced study of the unique operational application of business/managerial theory, methodology and best practice to physician practice management including facilities design and management, financial analysis and management, systems analysis and evaluation, application and management of information technology, assessment of health needs and marketing, quality improvement, human resource management and the legal/ethical aspects of health care.
5540. Management of Health Service Organizations II. 3 hours. Provides advanced study of the unique operational applications of business/managerial theory, methodology and best practice to integrated health care delivery systems and managed care organizations, including their history and evolution; the processes to manage the price, volume, technology, and quality of care; impact of employer and third party organizations; financial analysis and management; systems analysis and evaluation; application and management of information technology; assessment of health needs and development; pricing; and marketing of health plan benefit packages; quality improvement; and the legal/ethical aspects of contracting between the health plan and the delivery system.

5660. International Management. 3 hours. Designed to expose the student to the international aspects of management. Cultural differences in management applications, management of multinational corporations, and integration of domestic business functions and international operations.

5710. Management Strategies for Public Issues. 3 hours. Public issues confronting business leaders stemming from profound changes in societal expectations and demands as manifested in political forums and government action. Focuses on the social and political environment of business and explores the role of the corporation in today’s society.

5760. Strategic Management. 3 hours. Examination and evaluation of current theories, issues and programs involved in the formation, administration and implementation of administrative policies and planning systems. Includes both study of relevant literature and examination of policy and planning systems in operation within organizations.

5800. Internship. 3 hours. A supervised, productive and educationally meaningful work experience in a job related to the student’s career objective. Prerequisite(s): student must meet employer’s requirements and have consent of department. May not be used to meet professional field requirements. Pass/no pass only.

5850. Materials Management. 3 hours. Specialized application of fundamental principles of economics, accounting and management to the coordination of all business functions relating to materials.

5860. Contract Negotiation and Administration. 3 hours. Policies, practices, programs and techniques of negotiating and administering collective bargaining contracts.

5870. Leadership Research and Development. 3 hours. Theories and current research on leadership with emphasis placed on leadership development and specific applications within the organizational setting.

5890. Seminar in Compensation and Motivation Theory. 3 hours. An interdisciplinary seminar designed to study the theories, practices and techniques involved in developing and implementing total compensation programs for public and private organizations. The relationship of motivation theory to compensation theory is emphasized in an effort to develop the optimum package for employee productivity and satisfaction, and organizational costs. Topics included are compensation theory, conceptual framework for job satisfaction, job design, relationship of incentive compensation packages and international compensation.

5900. Special Problems. 1-3 hours. Open to graduate students who are capable of developing a problem independently. Problem chosen by the student and developed through conferences and activities under the direction of the instructor. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the College of Business Administration Student Advising Office prior to registration.

6010. Seminar in Business Administration. 3 hours. Covers one or more special fields. May be repeated for credit, and two or more sections may be taken concurrently.

6030. Seminar in Strategic Management. 3 hours. Examination of the theoretical and empirical research on the question of why some firms out perform others. Includes the study of formulation and implementation issues from economic, organizational, and other perspectives and prepares the student for participation in research within the field.

6100. Seminar in Organizational Behavior. 3 hours. An in-depth study of research in organizational behavior that familiarizes students with the classic and current literature in the discipline. Students will develop skills in theory-building and empirical research in the field.

6820. Seminar in Organizational Theory. 3 hours. Examination of the major theoretical streams in the study of organizations and the process of organizing. Extensive reading and seminar discussion are used to understand and extend both historical perspectives and emerging views and assist students in becoming active researchers within the discipline.

6860. Seminar in Human Resource Management. 3 hours. An examination of the major research in the field of human resources management, including the critical evaluation of research in terms of both theory and methodology. The integration and application of contemporary management theory to the field of human resource management in order to develop skills in theory-building and the design and implementation of empirical research.

6880. Production and Operations Management. 3 hours. Reading, research and analysis in the field of operations management, using a topical approach, with emphasis on such areas as design, operation and control of productive systems; methods of analysis; and operations policy formulation. Prerequisite(s): MGMT 5280 or equivalent, or consent of department. May be repeated for credit as topics vary.

6900-6910. Special Problems. 1-3 hours each. Research by doctoral students in fields of special interest. Includes project research studies and intensive reading programs, accompanied by conferences with professors in fields involved. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.

6940. Individual Research. Variable credit. Individual research for the doctoral candidate. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.
6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising dissertation Office prior to registration.

Management Science
see Business Computer Information Systems

Manufacturing Engineering Technology
see Engineering Technology

Marketing and Logistics*

*Name change pending approval by the Texas Higher Education Coordinating Board

Marketing, MKTG = 0365

4120. Buyer Behavior. 3 hours. A survey of individual and organizational decision-making in the acquisition, consumption and disposition of goods and services, with selected applications in market segmentation, marketing communications and marketing management. Topics include consumer and organizational behavior models and decision processes; internal influencing forces of motivation, perception, learning, personality, lifestyle and attitudes; external influencing forces of culture, subculture, demographic, social class, reference group and household. Prerequisite(s): MKTG 3650 (non-business majors may complete MKTG 2650).

4140. Credit Management. 3 hours. Consumer and commercial credit; economic and social impact of credit; state and federal legislative developments; credit management in retail and commercial firms.

4260. Global Logistics Management. 3 hours. Analysis and design of domestic and international logistics systems. Topics include transportation, warehousing, inventory control, materials handling and packaging, and plant and warehouse locations. Emphasis on concepts and practices that provide firms with global competitive advantage. Prerequisite(s): MKTG 3650 (non-business majors may complete MKTG 2650) or consent of department.

4280. Global Marketing Issues and Practice. 3 hours. Students examine marketing decision making in an international context. Course emphasizes issues and concepts relevant to firms competing in the global market place, including problems and opportunities arising from the economic, legal/political, sociocultural, geographic and technological environments. Specific topics include multinational distribution, international product adaptation and cross-cultural consumer behavior. Requires a project emphasizing using and refining secondary data collection skills. Students may be required to work in a group context. Prerequisite(s): MKTG 3650. Credit not awarded for both MKTG 2650 and MKTG 3650.

4520. Marketing Channels and Strategic Partnerships. 3 hours. An examination of strategic issues involved in managing marketing channels. Topics include channel design, supply chain management and the external channels environment. Marketing channel strategy is extended to the use of strategic alliances and other collaborative distribution relationships for global competitive advantage. Special attention is afforded to resource and technology interdependencies, exchange governance and relationship benchmarking. Prerequisite(s): MKTG 3650 (non-business majors may complete MKTG 2650).

4530. Global Distribution Alliances and Partnerships. 3 hours. Students are introduced to the economies of business relationships and networks, and are charged with critically assessing how these economies can be used to capitalize on market entry and expansion opportunities. Course requires students to prepare and present a case study of a real-world distribution alliance or partnering arrangement. Prerequisite(s): MKTG 3650 (non-business majors may complete MKTG 2650).

4560. Business Transportation Management. 3 hours. Principles of transportation covering the role of transportation systems; environmental and economic impacts; modal components; managerial and economic aspects of the various modes, with applications to both domestic and international operations. Prerequisite(s): MKTG 3650 and 4260.

4600. Retailing. 3 hours. Principles and methods; store location and layout; sales promotion; buying and pricing; personnel management; credit; stock control. Prerequisite(s): MKTG 3650 (non-business majors may complete MKTG 2650).

4620. Technology-Based Direct Response Marketing. 3 hours. Direct response marketing to businesses and consumers is increasingly important. Emphasizes the use of technologies to market to customers through the World Wide Web, interactive television, computer software, electronic kiosks and showrooms, and direct mail. Students develop a World Wide Web page for a firm as a project. Prerequisite(s): MKTG 3650 (non-business majors may complete MKTG 2650).

4630. Strategic Retailing Issues. 3 hours. An examination of the broader trends in markets, globalization, technology, finance, and human resources impacting retail decisions. Using studies of actual firms, current articles, and cases, students develop a strategic focus to corporate policies, resource allocations, customer markets and the competitive environment. Particular attention is given to technological advancements in areas of the World Wide Web, VSAT and terrestrial telecommunications. Prerequisite(s): MKTG 3650 and MKTG 4600 or consent of department.

4650. Sales Management. 3 hours. Basics of first level management in a sales setting. Topics include planning, organizing, staffing, directing and controlling the sales operation. Prerequisite(s): MKTG 3650 (non-business majors may complete MKTG 2650).
4710. Advanced Marketing Research. 3 hours. Limited to students with superior academic standing and requires the recommendation of marketing faculty. The course involves conducting a complete semester-long market research project with a business client. Student teams identify the client’s information needs and the appropriate sources of data, design the data collection instrument, select an appropriate sample, implement the data collection process, analyze the data, write and present a “consultant’s report.” Involves extensive use of statistical and graphics software and packages. Prerequisite(s): MKTG 3710 and consent of department.

4750. Marketing of Services. 3 hours. An examination of the selection, application and monitoring of marketing services. Focus is challenges in adjusting marketing techniques to meet the service needs of organizations. Prerequisite(s): MKTG 3650 (non-business majors may complete MKTG 2650).

4800. Internship. 3 hours. Supervised work in a job related to student’s career objective. Prerequisite(s): student must meet the employer’s requirements and have consent of the department chair. Pass/no pass only.

4810. Special Topics in Marketing or Logistics 3 hours. Investigation, analysis and discussion of a variety of topics that are important in marketing and logistics. Topics may include supply chain management, transportation, logistics, distribution and channel management, product development and management, sales management, consultative and team selling, promotion, market segmentation and opportunity analysis, and strategic pricing. Prerequisite(s): completion of 9 hours of upper-division marketing courses.

4860. Advanced Logistics Management. 3 hours. Application of logistics decision-making tools and skills as they apply to inventory, transportation, and warehouse management. Course stresses hands-on application of analytical tools useful in logistics; analysis of the characteristics of logistics system elements and their interrelationships within a company; developing skills to analyze technical logistics problems; and developing executive-level communications skills leading to the concise statement of problems and proposed solutions. Prerequisite(s): MKTG 4260.

4880. Advanced Marketing Management. 3 hours. Application of concepts, tools and procedures employed by practicing marketing managers. Specific attention is given to product development and management, promotion development and management, channel selection and management, physical distribution management, and price setting and management. Students acquire skills in the essentials of case analysis and written as well as oral presentation of their analysis. Oral presentations may be made using electronic media. Groups may be required for case work. Prerequisite(s): MKTG 3650 or 5000.

5200. Customer Behavior. 3 hours. In a marketplace increasingly characterized by enduring buyer-seller relationships, marketers must be acutely aware of the individual and organizational characteristics that foster brand loyalty and equity. The identification of changing trends in customer behavior as applied to domestic and global markets, consumer markets, business-to-business markets, institutional markets, not-for-profit markets and governmental markets is critical for competitive success in today’s dynamic markets and environments. The student will be introduced to models of buying behavior in consumer, business-to-business and not-for-profit marketing exchanges.

5250. Information Tools for Strategic Marketing Decisions. 3 hours. Methods for conducting market research, including applications of quantitative models. Research methodology topics covered include why and when to do marketing research; data types, sources, and collection methods; sampling; and data analysis techniques. Quantitative models include methods and tools for the identification of, and dealing with, uncertainty in marketing decision making. Prerequisite(s): MKTG 5150 and MSCI 5010. MSCI 5180 is recommended.

5300. Strategic Supply Chain Management. 3 hours. The distribution and logistics imperative is to achieve cost-containment while delivering customer satisfaction. This course examines how channel integration fosters the coordination, systemization needed to maximize efficiency and produces the greatest net value for the customer. Students explore how resource allocation and channel relationship decisions impact inventory, transportation, warehousing, purchasing and packaging systems. Prerequisite(s): MKTG 5150 or consent of department.
5550. Decision Making in Global Markets. 3 hours. The first half of the 21st century will be characterized by significant shifts in the manufacturing, distribution and consumption of products and services. As transitional and emerging economies mature, foreign entry, local marketing and global management become compelling issues in the design and implementation of marketing strategies. Emphasis on the rapidly changing nature of global markets and implications for the desirability and potential profitability of these markets. Significant sources of threats and opportunities, along with those internal resources of a firm necessary for coping with these opportunities and threats will form the core material of the course. Particular emphasis will be given to the market entry and expansion strategies available to multi-national and global marketers. Prerequisite(s): MKTG 5150.

5560. Strategic Logistics Management. 3 hours. Analysis of internal and environmental factors affecting logistical systems and operations. Includes the integration of transportation, inventory, facility location, informational flow, materials handling and packaging activities into a system for managing a physical flow of inbound and outbound products and materials in a global environment. The total-cost and total-system approaches are developed in relationship to planning and managing the logistical function within the organization. Prerequisite(s) MKTG 5150 or consent of department.

5600. Emerging Issues in Strategic Marketing. 3 hours. Investigation, analysis and discussion of selected emerging problems, methods, concepts relevant to strategic marketing decision-making in dynamic markets and environments. Examines a wide variety of marketing topics. Prerequisite(s): MKTG 5150 or consent of department.

5800. Internship in Marketing or Logistics. 3 hours. Supervised work experience in a position related to the student’s career objective which meets the department’s internship requirements. Prerequisite(s): 12 hours of graduate level marketing courses. Student must meet employer’s requirements and have consent of the department’s MBA adviser and the internship director.

5850. Effective Marketing Planning in Dynamic Environments. 3 hours. Development of a strategic marketing plan for a specific product or service utilizing techniques and information from earlier courses in the program. Implementation, control and evaluation plans are developed. Course also addresses the practical aspects of appraisal, prediction and monitoring of external market factors that will impact organizational performance. A major theme of the course is how marketing decisions contribute to developing and maintaining competitive advantage in dynamic markets. Prerequisite(s): must be taken in the final semester of the student’s program.

5900. Special Problems. 1-3 hours. Open to students who are capable of developing a problem independently. Problem chosen by the student and developed through conferences and activities under the direction of the instructor. Prerequisite(s): approved applications for special problems/ independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.

6600. Seminar in Marketing Issues. 3 hours. Investigation, analysis and discussion of significant issues in marketing. May be repeated for credit.

6900-6910. Special Problems. 1-3 hours each. Research by doctoral students in fields of special interest. Includes project research studies and intensive reading conferences with professors in fields involved. Prerequisite(s): approved applications for special problems/independent research/ dissertation credit must be submitted to the COBA Student Advising Office prior to registration.

6940. Individual Research. Variable credit. Individual research for the doctoral candidate. May be repeated for credit. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit. Prerequisite(s): approved applications for special problems/independent research/dissertation credit must be submitted to the COBA Student Advising Office prior to registration.

Master's Engineering Technology
see Engineering Technology

Materials Science

Materials Science, MTSC = 0149

4500. Internship in Materials Science. 3 hours. A supervised industrial internship requiring a minimum of 150 hours of work experience. Prerequisite(s): consent of department.

4920. Cooperative Education in Materials Science. 3 hours. Supervised work in a job directly related to the student’s major, professional field of study or career objectives. Prerequisite(s): 12 hours of credit in materials science; student must meet employer’s requirements and have consent of department. May be repeated for credit.

5100. Fundamental Concepts of Materials Science. 3 hours. Physics of materials; molecular structure and chemical reactivity; materials processing, macroscopic properties. Crystals, amorphous solids, liquids, gases, liquid crystals, polymer. Mechanical, thermophysical, electrical, magnetic and surface properties. Prerequisite(s): PHYS 4110 or consent of department.

5200. Advanced Concepts of Metallurgical Science. 3 hours. Phase transformations; phase diagrams; principles of metals processing; mechanical processing; joining; surface treatments.
5300. Science and Technology of Modern Ceramics. 3 hours. Steps in production of fired ceramics; methods of powder preparation and characterization; casting, extrusion, and injection molding; firing; chemical and physical changes during liquid phase and solid-state sintering.

5400. Advanced Polymer Physics and Chemistry. 3 hours. The structure, configuration, conformation and thermodynamics of polymer solutions, gels, and solids; mechanical, optical, and rheological properties of plastics and rubbers.

5420. Scientific Concepts of Advanced Composite Materials. 3 hours. Fibers; matrix materials; interfaces; polymer matrix composites; metal matrix composites; ceramic matrix composites; carbon fiber composites; micromechanics, fracture and fatigue; design.

5460. Thermal Analysis. 3 hours. Differential scanning calorimetry; thermogravimetric metric analysis; melting transition; glass transition; reflectance in the solid state; phase changes in polymer liquid crystals.

5500. Electronic and Optical Materials. 3 hours. Semiconductor purification and crystal growth; impurity doping by diffusion and ion implantation; contact formation; mechanical and chemical processing; semiconductor analysis; oxidation; lithography; pattern generation; process simulation and integration.

5510. Physical and Chemical Basis of Integrated Circuit Fabrication. 3 hours. Processing technology for very large scale integrated circuits and related applications. Lithography, oxidation, diffusion, ion implantation, film deposition, wet and dry etching, multilevel metal interconnect, process integration, manufacturing yield, and integrated circuit reliability.

5600. Materials Characterization. 3 hours. Survey of atomic and structural analysis techniques as applied to surface and bulk materials. Physical processes involved in the interaction of ions, electrons and photons with solids; characteristics of the emergent radiation in relation to the structure and composition.

5610. Fundamentals of Surface and Thin Film Analysis. 3 hours. Survey of materials characterization techniques; optical microscopy; Rutherford backscattering; secondary ion mass spectroscopy; ion channeling; scanning tunneling and transmission microscopy; x-ray spectroscopy; surface properties. Prerequisite(s): PHYS 5450.

5750. Advanced Topics in Mechanical Behavior of Materials. 3 hours. Stress, strain and the basics of concepts in deformation and fracture for metals, polymers, and ceramics. Analysis of important mechanical properties such as plastic flow, creep, fatigue, fracture toughness, and rupture. Application of these principles to the design of improved materials and engineering structures.

5800-5810. Special Studies in Materials Science. 3 hours each. Organized classes specifically designed to accommodate the needs of students and the demands of program development that are not met by regular offerings. Short courses and workshops on specific topics, organized on a limited-offering basis, to be repeated only upon demand. May be repeated for credit.

5820. Internship in Materials Science. 3 hours. A supervised industrial internship requiring a minimum of 150 clock hours of work experience. Prerequisite(s): consent of department.

5830. Cooperative Education in Materials Science. 3 hours. Supervised work in a job directly related to the student’s major, professional field of study or career objective.


5900-5910. Special Problems in Materials Research. 1-6 hours each. Special problems in advanced materials science for graduate students. Problems chosen by the student with approval of the supervising professor and the department chair.

5920-5930. Research Problems in Lieu of Thesis. 3 hours each. An introduction to research; may consist of an experimental, theoretical or review topic.

5940. Seminar in Current Materials Science Literature. 1-3 hours. Reports and discussion of current materials science research published in journals and other means of dissemination of research.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department, 6 hours of credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

5960. Materials Science Institute. 1-6 hours. For students accepted by the university as participants in special institute programs. May be repeated for credit, not to exceed a total of 6 hours in each course. Laboratory fee required.

6610. Diffraction Science. 3 hours. Diffraction theory; scattering and diffraction experiments; kinematic theory; dynamical theory; x-ray topography; crystal structure analysis; disordered crystals; quasi-crystals.

6620. Advanced Electron Microscopy. 3 hours. Theory and applications of scanning and transmission electron microscopy; sample preparation and analytical techniques.

6710. Imperfections in Solids. 3 hours. Point defects in metals, ceramics, and semiconductors; nonideal defect structures; nonequilibrium conditions produced by irradiation or quenching; effects of defects on mechanical and physical properties.

6720. Corrosion and Oxidation of Materials. 3 hours. Electrochemical corrosion; mechanisms and rates in relation to physicochemical and metallurgical factors; stress corrosion and mechanical influences on corrosion; corrosion protection.


6740. Phase Transformations. 3 hours. Advanced phase diagrams considering systems with as many as four components; emphasis on pressure-temperature-composition diagrams.
6800. Selected Topics in Materials Science. 3 hours. Topics from specialized areas of materials science, physics, and chemistry. Integrated circuit fabrication and materials. Transmission electron microscopy. May be repeated for credit as topics vary.

6900-6910. Special Problems. 1-3 hours each. Special problems experimental or theoretical for advanced graduate students. Problem chosen by the student with the approval of the supervising professor.

6940. Individual Research. Variable credit. To be scheduled by the doctoral candidate engaged in research. May be repeated for credit.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

6970. Seminar for Doctoral Candidates. 3 hours. Demonstration of competence in a specific area of materials science as evidenced by criteria established by the faculty of each discipline. May be repeated for credit.

6990. Postdoctoral Research. 3 hours. For postdoctoral fellows to further training and research experience in developing and solving problems independently. Prerequisite(s): consent of department. May be repeated for credit.

Mathematics

The content of courses will vary from time to time, reflecting current trends and recent developments.

Mathematics, MATH = 0150

4060. Foundations of Geometry. 3 hours. Selections from synthetic, analytic, projective, Euclidean and non-Euclidean geometry. Prerequisite(s): MATH 2520. Offered fall, summer II.


4200. Dynamical Systems. 3 hours. One-dimensional dynamics. Sarkovskii’s theory, routes to chaos, symbolic dynamics, higher-dimensional dynamics, attractors, bifurcations, quadratic maps, Julia and Mandelbrot sets. Prerequisite(s): MATH 2520. Offered fall.

4430. Introduction to Graph Theory. 3 hours. Introduction to combinatorics through graph theory. Topics introduced include connectedness, factorization, Hamiltonian graphs, network flows, Ramsey numbers, graph coloring, automorphisms of graphs and Polya’s Enumeration Theorem. Connections with computer science are emphasized. Prerequisite(s): MATH 2510 or 2770. Offered fall.

4450. Introduction to the Theory of Matrices. 3 hours. Congruence (Hermitian); similarity; orthogonality, matrices with polynomial elements and minimal polynomials; Cayley-Hamilton theorem; bilinear and quadratic forms; eigenvalues. Prerequisite(s): MATH 2700. Offered spring, summer II.

4500. Introduction to Topology. 3 hours. Point set topology; connectedness, compactness, continuous functions and metric spaces. Prerequisite(s): MATH 2520. Offered spring, summer II.

4520. Introduction to Functions of a Complex Variable. 3 hours. Algebra of complex numbers and geometric representation; analytic functions; elementary functions and mapping; real-line integrals; complex integration; power series; residues, poles, conformal mapping and applications. Prerequisite(s): MATH 2730. Offered fall, summer I.

4610. Probability. 3 hours. Combinatorial analysis, probability, conditional probability, independence, random variables, expectation, generating functions and limit theorems. Prerequisite(s): MATH 2730. Offered fall, summer I.

4650. Statistics. 3 hours. Sampling distributions, point estimation, interval estimation, hypothesis testing, goodness of fit tests, regression and correlation, analysis of variance, and non-parametric methods. Prerequisite(s): MATH 4610. Offered spring, summer II.

5010. Foundations of Mathematics. 3 hours. Mathematical logic and set theory; axiomatic methods; cardinal arithmetic; ordered sets and ordinals; the axiom of choice and its equivalent forms; the continuum hypothesis. Prerequisite(s): consent of department.

5050. Linear Programming. 3 hours. Convex polyhedra, simplex method, duality theory, network flows, integer programming, ellipsoidal method, applications to modeling and game theory. Prerequisite(s): consent of department.

5110-5120. Introduction to Analysis. 3 hours each. A rigorous development for the real case of the theories of continuous functions, differentiation, Riemann integration, infinite sequences and series, uniform convergence and related topics; an introduction to the complex case.

5200. Topics in Dynamical Systems. 3 hours. Dynamical systems in one and higher dimensions. Linearization of hyperbolic fixed points. Hamiltonian systems and twist maps. The concept of topological conjugacy and structural stability. Anosov diffeomorphisms, geodesic flow and attractors. Chaotic long-term behavior of these hyperbolic systems. Measures of complexity. Prerequisite(s): consent of department.

5210-5220. Numerical Analysis. 3 hours each. A rigorous mathematical analysis of numerical methods: norms, error analysis, linear systems, eigenvalues and eigenvectors, iterative methods of solving non-linear systems, polynomial and spline approximation, numerical differentiation and integration, numerical solution or ordinary and partial differential equations. Prerequisite(s): FORTRAN programming or consent of department.
5290. Numerical Methods. 3 hours. A non-theoretical development of various numerical methods for use with a computer to solve equations, solve linear and non-linear systems of equations, find eigenvalues and eigenvectors, approximate functions, approximate derivatives and definite integrals, solve differential equations and solve other such problems of a mathematical nature. Errors due to instability of method and those due to the finite-precision computer will be studied. Prerequisite(s): a programming language and consent of department.

5310-5320. Functions of a Real Variable. 3 hours each.

5310. Sets and operations; descriptive set properties; cardinal numbers; order types and ordinals; metric spaces; the theory of Lebesque measure; metric properties of sets.

5320. Set functions and abstract measure; measurable functions; types of continuity; classification of functions; the Lebesgue integral; Dini derivatives and the fundamental theorem of the calculus.

5350. Markov Processes. 3 hours. The ergodic theorem; regular and ergodic Markov chains; absorbing chains and random walks; mean first passage time; applications to electric circuits, entropy, genetics, games, decision theory and probability.

5410-5420. Functions of a Complex Variable. 3 hours each. The theory of analytic functions from the Cauchy-Riemann and Weierstrass points of view.

5450. Calculus on Manifolds. 3 hours. Introduction to differential geometry and topology. Topics include implicit and inverse function theorems, differentiable manifolds, tangent bundles, Riemannian manifolds, tensors, curvature, differential forms, integration on manifolds and Stokes’ theorem. Prerequisite(s): consent of department.


5520. Modern Algebra. 3 hours. Groups and their generalizations; homomorphism and isomorphism theories; direct sums and products; orderings; abelian groups and their invariants. Prerequisite(s): MATH 3510 or equivalent.

5530. Selected Topics in Modern Algebra. 3 hours. Ring and field extensions, Galois groups, ideals and valuation theory.

5610-5620. Topology. 3 hours each. A rigorous development of abstract topological spaces, mappings, metric spaces, continua, product and quotient spaces; introduction to algebraic methods.

5810-5820. Probability and Statistics. 3 hours each.

5810. Important densities and stochastic processes; measure and integration; laws of large numbers; limit theorems.

5820. Markov processes and random walks; renewal theory and Laplace transforms; characteristic functions; infinitely divisible distribution; harmonic analysis.

5900-5910. Special Problems. 1-3 hours each.

5940. Seminar in Mathematical Literature. 1-3 hours.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

6010. Topics in Logic and Foundations. 3 hours. Mathematical logic, metamathematics and foundations of mathematics. May be repeated for credit.

6110. Topics in Analysis. 3 hours. Measure and integration theory, summability, complex variables and functional analysis. May be repeated for credit.

6130. Infinite Processes. 3 hours. Topics selected from infinite series, infinite matrices, continued fractions, summation processes and integration theory.

6150. Functional Analysis. 3 hours. Normed linear spaces; completeness, convexity and duality. Topics selected from linear operators, spectral analysis, vector lattices and Banach algebras. May be repeated for credit.


6200. Topics in Ergodic Theory. 3 hours. Basic ergodic theorems. Mixing properties and entropy. Oseledec’s multiplicative ergodic theorem and Lyapunov exponents. Applications to dynamical systems. Rational functions and Julia sets. Wandering across Mandelbrot set. Sullivan’s conformal measure. Thermodynamical formalism and conformal measures applied to compute Hausdorff measures and packing measures of attractors, repellors and Julia sets. Dimension invariants (Hausdorff, box and packing dimension) of these sets. May be repeated for credit. Prerequisite(s): consent of department.

6310. Topics in Combinatorics. 3 hours. Selected topics of current interest in combinatorics such as enumeration, combinatorial optimization, Ramsey theory, topological graph theory, random methods in combinatorics (random graphs, random matrices, randomized algorithms, etc.), combinatorial designs, matroids, formal languages and combinatorics on words, combinatorial number theory, combinatorial and symbolic methods in dynamical systems. May be repeated for credit.

6510. Topics in Algebra. 3 hours. Groups, rings, modules, fields and other algebraic structures; homological and categorical algebra. Multiplicative and additive number theory, diophantine equations and algebraic number theory. May be repeated for credit.

6610. Topics in Topology and Geometry. 3 hours. Point set and general topology, differential geometry and global geometry. May be repeated for credit.
6620. Algebraic Topology. 3 hours. Topics from algebraic topology such as fundamental group, singular homology, fixed point theorems, cohomology, cup products, Steenrod powers, vector bundles, classifying spaces, characteristic classes and spectral sequences. Prerequisite(s): MATH 5530 and 5620. May be repeated for credit.

6710. Topics in Applied Mathematics. 3 hours. Optimization and control theory, perturbation methods, eigenvalue problems, generalized functions, transform methods and spectral theory. May be repeated for credit.

6810. Probability. 3 hours. Probability measures and integration, random variables and distributions, convergence theorems, conditional probability and expectation, martingales, stochastic processes. May be repeated for credit.

6900-6910. Special Problems. 1-3 hours each.

6940. Individual Research. Variable credit. To be scheduled by the doctoral candidate engaged in research. May be repeated for credit.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

Mechanical Engineering Technology

see Engineering Technology

Merchandising and Hospitality Management

Merchandising and Hospitality Management, SMHM = 1110

4000. Merchandising and Hospitality Management Study Tour. 1-3 hours. Experience fashion, home furnishings, and hospitality industries through visits to manufacturing facilities, retail establishments, museums, historical structures, hotels, restaurants and industry support organizations. Includes field study in industry centers for fashion (New York), home furnishings (High Point, N.C.), hospitality (Las Vegas), or other selected destinations. Pre-trip and post-trip classes required. Prerequisite(s): SMHM 1500; 2400 or 2490; and consent of instructor. Credit varies depending upon length of field study and destination. No more than 3 hours of field study may be used to fulfill degree requirements.

4010. Global Textiles and Apparel Industries. 3 hours. Overview of textile and apparel industries with emphasis on international issues and factors affecting processes from the production through distribution of textiles and apparel. Prerequisite(s): SMHM 2490 or consent of instructor.

4080. Merchandising Ventures. 3 hours. Exploration of the merchandisers’ role in establishing new ventures with fashion and home furnishings products. Includes non-traditional merchandising formats. Prerequisite(s): SMHM 2400 or SMHM 2490; 3510; and ACCT 2020.

4090. Virtual Merchandising. 3 hours. Study and application of visual merchandising in a virtual format. Emphasis on merchandising processes that convey product characteristics to the consumer from production through distribution. Prerequisite(s): SMHM 2360 and 2490 or 2400.

4210. Hospitality Cost Controls. 3 hours. A study of the food, beverage and labor cost control systems used in the hospitality industry. Emphasis is on the use of control systems for managerial planning, analysis and evaluation. Includes the concept and terminology of costs; departmental income and expense statements; budgets; purchasing, receiving and inventory systems. Prerequisite(s): ACCT 2020 and 2030.

4250. Quantity Food Production and Management. 3 hours. A laboratory-based course designed to provide students with an understanding of quantity food production principles and techniques. Students apply organizational and management skills in the actual operation of a restaurant facility. Prerequisite(s): SMHM 1420, 2550 and 4210. BIOL 2380 recommended. Students must apply one semester in advance and pass departmental screening. Uniforms required.

4260. Hospitality Business Strategies. 3 hours. Comprehensive study, strategic planning and analysis of the hospitality manager’s role in operating a successful hospitality operation including applications of specialized computer software and human relations skills. Prerequisite(s): SMHM 3260 or consent of instructor.

4300. Survey of Beverages in the Hospitality Industry. 3 hours. A study of social beverages commonly used in the hospitality industry. Primary emphasis is on history, language, product identification and production and merchandising techniques for wines, beers, distilled spirits and non-alcoholic beverages. Prerequisite(s): student must be 21 years of age or older.

4650. Private Label Merchandising. 3 hours. Students plan, develop and present a merchandise group for private label apparel or home furnishings goods. A multi-functional team approach. Includes application of computer software. Prerequisite(s): SMHM 1650 or 2400; 2650; and advanced standing in major, or consent of instructor.

4660. Advanced Merchandising Applications. 3 hours. (2:2) An experiential retail laboratory serves as a real-world case study of merchandising theory, principles and operations. Emphasis on problem solving, case analysis, creative thinking, fact finding, data analysis and data interpretation to operate a for-profit business. Prerequisite(s): SMHM 3510, 3850, and advanced standing in major, or consent of instructor.

4730. Hotel and Restaurant Management Systems. 3 hours. In-depth analysis of the systems approach to marketing management in the hospitality industry. Students will utilize computer simulations to gain an understanding of hotel operations and menu engineering principles. An overall understanding of quality management is emphasized. Prerequisite(s): MKTG 3650, MGMT 3820 and SMHM 4210.

4750. Managing a Diverse Work Force. 3 hours. Exploration of current issues affecting management of a global work force. Managing a diverse workforce requires working effectively with people who vary by nationality, ethnicity, culture, religion, gender, language, age, abilities and unique personal characteristics.
4820. Facilities Planning, Equipment, Layout and Design. 3 hours. (2;2) Principles of hotel and restaurant property management and facilities layout and design, emphasizing equipment selection, space allocation, guest and production/service traffic flow patterns and facility operations management. Prerequisite(s): SMHM 4250 (may be taken concurrently).

5240. Merchandising Practices. 3 hours. Case analysis of merchandising principles practiced by representative consumer-driven international and domestic textile, apparel, and home furnishings companies. Interpretation of global trends and issues influencing the vertical and horizontal integration of merchandising practices in the distribution pipeline.

5250. Restaurant Development. 3 hours. The identification, examination and application of restaurant development principles. Topics include menu planning, service styles, dining room and kitchen design, materials purchasing and receiving, food production techniques, accounting and financial management, and merchandising.

5280. Hotel and Restaurant Operations: Theory and Analysis. 3 hours. A study of hotel and restaurant management operations problems, including the areas of budgeting, human resource scheduling and payroll control, sales forecasting, costing and financial statement analysis. Students will be actively involved in writing and discussing cases on current operations issues.

5300. Research Methods in Merchandising and Hospitality Management. 3 hours. Critical evaluation of research methods in merchandising and hospitality management fields. Develop research framework and formulate research design questions. Enhance research skills through writing a thesis proposal or research proposal.

5350. Issues and Trends in Merchandising and Hospitality Management. 3 hours. An analysis of current issues, trends and future projections influencing the field of either hotel and restaurant management or fashion merchandising.

5400. Research Applications in Merchandising and Hospitality Management. 3 hours. Execute research projects with implications for marketers in textile, apparel, home furnishings or hospitality industries. Emphasis is on conceptualizing problems, analyzing and interpreting data, and writing for industry and/or scholarly dissemination. Prerequisite(s): SMHM 5300; statistics; or consent of instructor.

5440. Consumer Theory. 3 hours. Classic and contemporary consumer theories analyzed in situational contexts. Emphasis on formulating integrated consumer behavior models for strategic decision-making in both domestic and international consumer-driven markets in merchandising and hospitality industries.

5460. Human Relations in Merchandising and Hospitality Management. 3 hours. Major areas of human relations skills necessary for managing employees and customers in merchandising and hospitality management are studied. Topics include employee supervision, motivation, communication, training, management development, problem-solving, decision making and stress management.

5500. Merchandising Strategies. 3 hours. Merchandising theory, principles and practice applied to the strategic planning, developing and presenting of textile, apparel and home furnishings product lines. How consumer driven markets motivate product sourcing, pricing, assortment, styling, and timing in the global distribution pipeline.

5550. Promotional Strategies. 3 hours. Analyze internal, external and situational factors that influence promotion strategies including advertising, public relations, promotions and salesmanship. Formulate and judge promotion strategies that generate added economic value to textile, apparel, home furnishings, or hospitality products or companies.

5600. Concept Merchandising. 3 hours. Explore concept merchandising of tangible and intangible products, services and experiences that are linking merchandising and hospitality segments. Apply merchandising strategies of planning, developing, and presenting products to consumers with the experiential components of the hospitality industry to provide a total concept-based experience. Topics include lifestyle merchandising, thematic merchandising, experience packaging, immersive environments, brand extension, co-branding, product category management, blurring, customization, innovation (planned obsolescence), consumer value orientations, value-added merchandising, core competencies in products and services, collaborative partnerships, and globalization.

5650. Global Merchandising. 3 hours. Critical analysis of merchandising principles and practices in a global context with emphasis on economic, political, environmental, cultural and social issues; geographic distribution; trade theory; trade data; and technological developments. Contrast the global dominance of textile, apparel and home furnishings industries on world trade and on consumer-driven markets by country and geo-political regions.

5700. Service Excellence. 3 hours. Explores the dynamics of service excellence in the merchandising and hospitality industries. How consumer-driven trends motivate service approaches, management and training procedures, and their impact in the marketplace.


5790. Field Experiences in Various Areas of Concentration. 3 hours. Arranged.

5800. Seminar in Various Areas of Concentration. 3 hours. May be repeated for credit as topics vary.

5900-5910. Special Problems in Various Areas of Concentration. 3 hours each. Arranged. Prerequisite(s): consent of instructor.

5920. Problem in Lieu of Thesis. 3 hours. No credit given until problem in lieu of thesis is completed.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.
Microsystems Engineering Technology
see Engineering Technology

Military Science
see Undergraduate Catalog

Music
MUAG — Music Applied General Courses
MUAM — Music Applied Private Lessons (Major)
MUAC — Music Applied Private Lessons (Concentration)
MUAS — Music Applied Private Lessons (Secondary)
MUCM — Chamber Music
MUCP — Music Composition
MUED — Music Education
MUEN — Music Ensembles
MUET — Music Ethnomusicology
MUGC — Music General Courses
MUMH — Music History and Literature, and Musicoicology
MUJS — Music Jazz Studies
MULB — Music Laboratories
MUTH — Music Theory

Courses that may be repeated for credit are
MUAG 4360, 4370, 4740, 5000, 5210, 5390, 5640, 5650, 5660, 5800, 5810, 5850, 5860, 5890, 6460 and 6850; all courses in MUAM, MUAC and MUAS; all courses in MUCM; MUCP 4190, 4580, 5180, 5190, 5590, 5680, 5690, 5700, 5710, 6100, 6110 and 6120; MUED 5300, 5821, 5822, 5823, 5831, 5832, 5840, 5880 and 6480; all courses in MUEN; MUJS 5470 and 5760; MUET 5090, 5381, 5382, 5383 and 6680; and MUGC 5890, 5900-5910, 5930, 5950, 6900-6910, and 6950.

Applied General Courses, Music,
MUAG = 0830

4001. Student Teaching in Studio Piano. 3 hours. (3:5) Observation and supervised student teaching with an emphasis on private studio teaching. Prerequisite(s): consent of college.

4002. Student Teaching in Group Piano. 3 hours. (1:2) Observation and supervised student teaching with an emphasis on group piano teaching.

4210. Vocal Literature. 3 hours. Solo literature since the Renaissance; style, interpretation and materials for all voice classifications. Music performed by class members and through recordings.

4260-4270. Piano Pedagogy. 3 hours each. Approaches for children and adult beginners; technique, style and musicianship; review and recommendation of materials for all grades. Supervised student teaching. Prerequisite(s) for 4270: 4260 or consent of college.

4300. Science and Pedagogy of Singing. 3 hours. Basic knowledge of respiration, phonation, resonance and articulation; concepts and techniques for the teaching of singing. Laboratory demonstrations and studio observations for students of voice, choral conducting and composition.

4350. Repair and Maintenance of Musical Instruments. 1 hour. (0:3) Repair of brass, woodwind and percussion instruments. For instrumental music teachers and those interested in instrument repair. Prerequisite(s): MUAG 1125 or 1225, or consent of college.

4360-4370. Instrumental Pedagogy and Repertoire. 3 hours each. Study and analysis of instrumental literature; correlation of literature and pedagogical materials; survey of schools of performance and instruction; brass, percussion, keyboard, strings and woodwinds. May be repeated for credit as topics vary.

4380. Organ Literature and Pedagogy. 3 hours. Organ music of the Renaissance and Baroque periods. Survey of major composers, styles and forms; construction and design of appropriate instruments. Performance and pedagogy problems, including interpretation on contemporary instruments, considered.

4390. Organ Literature and Pedagogy. 3 hours. Organ music from the mid-18th century to the present. Survey of major composers, styles and forms; construction and design of appropriate instruments. Performance and pedagogy problems, including interpretation on contemporary instruments, considered.

4410. Harpsichord Literature and Pedagogy. 3 hours. Harpsichord music of the Renaissance and early Baroque periods. Survey of major composers, national styles and forms; construction and design of appropriate instruments. Performance practices are thoroughly explored. Pedagogical principles are applied to repertoire. Individual research projects.

4420. Harpsichord Literature and Pedagogy. 3 hours. (3:0) Harpsichord literature from the mid-17th century to the present, including the music of Bach. Survey of major composers, styles and forms; construction and design of appropriate instruments. Performance practices are thoroughly explored. Pedagogical principles are applied to repertoire. Individual research projects.

4720. Organ Service Playing I. 2 hours. (1:1) Intense study of basic hymn playing, harmonic progressions, melody harmonization, open score reading (including alto and tenor clefs), modulation, figured bass, transposition, and elementary improvisation. Successful completion of this course allows students to compete for major church positions and prepare for the AAGO certification. Prerequisite(s): MUTH 2390 and 2490.
4730. Organ Service Playing II. 2 hours. (1:1) Advanced study of figured bass, open score reading (four parts including both tenor and alto clefs), transposition of more difficult texture, and improvisation of binary, ternary, and variation (choral partita) structures. Successful completion of this course prepares students for FAGO certification. Prerequisite(s): MUAG 4720 or consent of college.

4740. Seminar in Church Music. 3 hours. For interests and talents of students; class and private conferences. Topics include historical and contemporary developments in hymnody; liturgical music; church choir literature and techniques; and church music philosophy, education and administration. May be repeated for credit as topics vary.

4750. Seminar in Performance and Repertoire. 3 hours. Consideration of style, interpretation, performance practice traditions of selected portions of the performing repertoire; student performances and recordings. May be repeated for credit as topics vary. Prerequisite(s): consent of instructor.

5000. Choral Techniques. 3 hours. Choral organizations, singing, conducting, performing, repertoire and history. Actual experience in a model a cappella choir.

5210. Studies in Vocal Literature. 2 hours. An intensive study of a style period or genre of solo vocal literature. May be repeated for credit as topics vary.

5260. Piano Accompanying (Vocal). 3 hours. Sight reading and transposition; lied and art-song repertoire; orchestral reductions for aria accompaniment. Prerequisite(s): consent of college.

5261. Advanced Piano Accompanying (Vocal). 3 hours. Sight reading, transposition and clef reading; art song and aria repertoire; coaching methods. Prerequisite(s): MUAG 5261.

5270. Piano Collaboration (Instrumental). 3 hours. Fundamentals of instrumental collaboration; rehearsal techniques; score reading (transposition and clefs), orchestral reductions; instrumental repertoire; work with soloists. Prerequisite(s): consent of college.

5271. Advanced Piano Collaboration (Instrumental). 3 hours. Advanced score reading (transposition and clefs), orchestral reductions; advanced instrumental repertoire; continued work with soloists, thorough bass realization. Prerequisite(s): MUAG 5270.

5280. Service Playing Skills I. 2 hours. Intense study of basic hymn playing, keyboard harmony, transposition, figured bass, open score reading, sight-reading, and beginning improvisation. Prerequisite(s): satisfactory score on Graduate Placement Exam or MUTH 5381, 5382, and 5383.

5360. Instrumental Pedagogy and Repertoire. 3 hours. Study and analysis of instrumental literature; correlation of literature and pedagogical materials; survey of schools of performance and instruction; brass, percussion, keyboard, strings, and woodwinds. May be repeated for credit as topics vary.

5390. Studies in Organ/Harpsichord Literature, Pedagogy, Construction and Design. 3 hours. For interests and talents of students; class and private conferences. Topics may include special problems in performance and literature, pedagogical materials and skills, correlations between literature and organ design, and organ and/or harpsichord maintenance. May be repeated for credit as topics vary.

5560. Advanced Piano Pedagogy and Musicianship. 3 hours. Instructional techniques, materials, curriculum planning and philosophical basis for teaching piano and musicianship at the college and university levels with focus on group instruction. Prerequisite(s): MUAG 4260 and 4270, or equivalent. Field experience required.

5570. Comparative Piano Pedagogy and Repertoire. 3 hours. Instructional techniques, repertoire, curriculum planning and philosophical basis for teaching piano performance at the high school and undergraduate collegiate levels. Prerequisite(s): MUAG 4260 and 4270, or equivalent. Field experience required.

5600. Advanced Science and Pedagogy of Singing. 3 hours. Advanced literature on research in singing; laboratory instrumentation; practical studio procedures for building and equalizing the singing voice. Topics include vocal abuse and misuse, fitness for singers, and the psychology of singing and teaching of singing. Studio observations and practice in teaching. Prerequisite(s): MUAG 4300 or consent of college.

5610. Comparative Pedagogy of Singing. 3 hours. Comparison of Western pedagogical models from the bel canto period (1685-1825) to the present and of current national styles. Formulation of teaching strategies harmonious with the common ideals of Western artistic voice culture. Prerequisite(s): MUAG 5600 or consent of college.


5650. Opera Stage Direction. 3 hours. Prerequisite(s): MUAG 5640 or MUEN 3040 (two semesters), and consent of college.

5660. Studies in Opera Repertoire. 3 hours. Extensive analysis and background study of representative operas from one of the following periods: beginnings through Mozart, 19th-century Italian and French opera, 19th-century German and Russian opera, and 20th-century opera. Guided research on individual projects. May be repeated for credit as topics vary.

5800. Advanced Choral Conducting. 3 hours. Class is organized as an a cappella choir for performance practice; manipulating the group and the music. Prerequisite(s): MUAG 3810-3820 or equivalent.

5810. Choral Literature. 3 hours. Topics in choral music, organized by period and/or genre. Score study, listening, performance practice, technical demands and rehearsal requirements. Course content varies each semester. May be repeated for credit.

5850. Advanced Instrumental Conducting. 3 hours. Exercises to develop coordination of mind and hands; techniques of noted conductors; musical terms; score reading and actual conducting. Prerequisite(s): MUAG 3800-3870 and consent of instructor. Audition required.
5860. Wind Instrument Ensemble Literature. 3 hours. A comprehensive survey and study of the important wind repertoire for large and smaller instrumental ensembles. Topics include programming, analysis, interpretation, rehearsal problems and performance style.

5890. Topics in Music Performance and Pedagogy. 1-3 hours. Selected topics in music performance and pedagogy that are not met by the regular offerings. Short courses and workshops on specific topics organized on a limited-offering basis. May be repeated for credit.

5900-5910. Special Problems. 1-3 hours each.

6260. Piano Literature. 3 hours. Baroque and classical periods; recordings and student performances.

6270. Piano Literature. 3 hours. Romantic period to present; recordings and student performances.

6280. Vocal Literature. 3 hours. Solo literature from 1509 to 1750; stylistic analysis and historical significance.

6290. Vocal Literature. 3 hours. Solo literature from 1750 to present; stylistic analysis and historical significance.

6360. Instrumental Literature. 3 hours. Solo works for the student’s major instrument.

6370. Instrumental Literature. 3 hours. Chamber and orchestral works for the student’s major instrument.

6380. Organ Literature. 3 hours. To 1750.

6390. Organ Literature. 3 hours. From 1750 to present.

6640. Opera Production. 3 hours. Choosing repertory, securing materials, translation, budget planning and promotion. Prerequisite(s): MUAG 5650 and consent of college.

6850. Advanced Score Reading and Interpretation (Band and/or Orchestra). 3 hours. Analysis of works of various styles and periods to determine interpretive dimensions, rehearsal and baton techniques. Conducting experience provided with performing organizations. Prerequisite(s): examination and consent of college. Course content varies each semester.

6900-6910. Special Problems. 1-3 hours each.

**Applied Private Lessons, Music, MUAM = 0815; MUAC = 0820; MUAS = 0825**

Curriculum requirements in Music Applied Private Lessons for majors (MUAM) are 3-4 credit hours per semester; for concentrations (MUAC), 2 credit hours per semester; for secondaries and electives (MUAS), 1 credit hour per semester. Exceptions to these requirements must have the consent of the dean of the College of Music.

5501-5533. Master’s-Level Applied Music, Private Lessons. Variable credit: for majors (MUAM), 1-5 semester hours; for concentrations (MUAC), 1-3 semester hours; for secondaries and electives (MUAS), 1-2 semester hours. Fee required.

5501. Piano.

5502. Organ.

5503. Voice.

5504. Violin.

5505. Viola.

5506. Cello.

5507. Double Bass.

5508. Flute.

5509. Oboe.

5511. Clarinet.

5512. Saxophone.

5513. Bassoon.

5514. French Horn.

5516. Trumpet.

5517. Trombone.

5518. Euphonium.

5519. Tuba.

5521. Percussion.

5522. Harp.

5523. Functional Piano. (MUAS only)

5524. Vocal Coaching. (MUAS only)

5526. Jazz Guitar. (MUAC only)

5527. Guitar.

5528. Harpsichord.

5529. Organ Service Playing. (MUAS only)

5531. Keyboard Continuo Playing. (MUAS only)

5532. Early Instruments. (MUAC and MUAS only)

5533. Conducting. (MUAM only)

6501-6533. Doctoral-Level Applied Music, Private Lessons. Variable credit: for majors (MUAM), 1-5 semester hours; for concentrations (MUAC), 1-3 semester hours; for secondaries and electives (MUAS), 1-2 semester hours.

6501. Piano.

6502. Organ.

6503. Voice.

6504. Violin.

6505. Viola.

6506. Cello.

6507. Double Bass.

6508. Flute.

6509. Oboe.

6511. Clarinet.

6512. Saxophone.
6513. Bassoon.
6514. French Horn.
6516. Trumpet.
6517. Trombone.
6519. Tuba.
6521. Percussion.
6524. Vocal Coaching. (MUAS only)
6527. Guitar.
6528. Harpsichord.
6533. Conducting. (MUAM only)

Chamber Music, MUCM = 0865
5510. String Chamber Music. 1 hour. (0;2)
5520. Woodwind Chamber Music. 1 hour. (0;2)
5530. Brass Chamber Music. 1 hour. (0;2)
5540. Percussion Chamber Music. 1 hour. (0;2)
5550. Jazz Chamber Music. 1 hour. (0;2)

Composition, Music, MUCP = 0835
4430. Orchestration. 3 hours. Historical survey of orchestral practices, with emphasis on contemporary approaches. Creation of original works or transcriptions for orchestra. Score study and rehearsal attendance required. Prerequisite(s): MUCP 4330 with a grade of B or better and MUCP 2190 or equivalent. Primarily for composition majors.
4510. Contemporary Music. 3 hours. Survey of recent music emphasizing experimental compositional methods. Listening, score study and analysis. Prerequisite(s): MUTH 2390 and 2490, and MUMH 3510, or consent of college.
4580. Applied Composition. 3 hours each. Writing small works in contemporary styles. Prerequisite(s): MUCP 3580 or equivalent. For non-composition majors. May be repeated for credit contingent on a grade of B or better.
4810. Electro-acoustic Music I. 3 hours. (3;1) Theory, principles and practice of electro-acoustic composition. Includes weekly studio time. Prerequisite(s): two semesters of composition or consent of college.
4820. Electro-acoustic Music II. 3 hours. (3;1) Continuation of MUCP 4810. Includes weekly studio time. Prerequisite(s): MUCP 4810, or consent of college.
5180. Applied Composition. 3 hours. Development of techniques and styles according to individual needs. May be repeated for credit. Prerequisite(s): 6 hours of undergraduate composition or consent of college. For non-composition majors.
5190. Applied Composition. 3 hours. Composition in larger forms and various media. May be repeated for credit. Prerequisite(s): MUCP 4190 or equivalent. For composition majors only.
5590. Intermedia Performance Seminar. 1-3 hours. Production of and performance in individual and group projects in the presentation of intermedia compositions, emphasizing computer music media and utilizing the resources of the New Music Performance Lab and the Intermedia Theater. Open to graduate students in music and other arts, radio and television. Assigned credit hours are determined in audition/interview by instructor prior to enrollment, based on the scope of the proposed project and the degree of individual student responsibility for course project(s).
5680. Seminar in Computer Music Media I. 3 hours. Digital sound synthesis systems; computer systems applications; intermedia composition. Prerequisite(s): MUCP 4810 or equivalent.
5690. Seminar in Computer Music Media II. 3 hours. Digital sound synthesis systems; computer-assisted composition; projects in intermedia composition. Prerequisite(s): MUCP 5680.
5700. Digital Audio Software Synthesis. 3 hours. Advanced digital synthesis systems emphasizing complex timbre design; computer-assisted composition; advanced intermedia composition. Prerequisite(s): MUCP 4810 or equivalent.
5710. Real-Time Computer Music Systems. 3 hours. Advanced computer-assisted composition; interactive, real-time digital synthesis composition; advanced projects in intermedia composition. Prerequisite(s): MUCP 4810 or equivalent.
5900-5910. Special Problems. 1-3 hours each.
6100. Applied Composition. 3 hours. For composition majors only. May be repeated for credit. Prerequisite(s): master’s degree in composition or equivalent. Restricted to students who have been admitted to the DMA or PhD program in composition.
6110. Composition: Advanced Computer Music Systems I. 3 hours. Computer-assisted composition requiring the completion and documentation of a project that demonstrates original research in compositional algorithms. Prerequisite(s): 9 hours selected from MUCP 5680, 5690, 5700 or 5710.
6120. Composition: Advanced Computer Music Systems II. 3 hours. Computer-assisted composition requiring the completion and documentation of a project that demonstrates original research in digital and analog conversion systems for discrete-time waveform synthesis. Prerequisite(s): MUCP 6110.
6130. Composition: Instrumental Writing. 3 hours. Analysis and composition of instrumental music, with emphasis on contemporary practices. Prerequisite(s): restricted to students who have been admitted to the DMA or PhD program in composition.
6140. Composition: Choral Writing. 3 hours. Analysis and composition of choral music, with emphasis on contemporary practices. Prerequisite(s): restricted to students who have been admitted to the DMA or PhD program in composition.

6150. Analysis of Contemporary Music. 3 hours. Techniques and styles of composers determined by analysis of representative works; related literature, books and articles by composers, theorists and musicologists.

6410. Twentieth-Century Contrapuntal Techniques. 3 hours. Review of structural principles of polyphonic writing from the 16th through the 19th centuries. Analytical studies of 20th-century works that demonstrate expansion or extension of these principles. Original written projects are required. Prerequisite(s): satisfactory score on the Graduate Placement Examination or MUTH 5381, 5382 and 5383.

6900-6910. Special Problems. 1-3 hours each.

**Education, Music, MUED = 0875**

4103. Advanced Techniques and Materials for Elementary General Music Instruction. 3 hours. Techniques for instructional planning (K-6) utilizing aspects of various teaching approaches (Orff, Kodaly, Dalcroze and eclectic). Principles of sequentially organized materials and activities for the young learner in general music. Prerequisite(s): MUED 2310 and 3100, or consent of college.

4109. Methods and Materials for Teaching Instrumental Music in Elementary Schools. 3 hours. Rehearsal objectives, instructional techniques and materials specific to beginning band and orchestra; rehearsal management and organization; visual and aural diagnostic skills for teaching performance fundamentals; lab school field experience. Prerequisite(s): MUED 2310 and 3100; and as applicable: MUAG 1102-1202, 1117-1217, 1121-1221 and 1125-1225, or consent of college.

4203. Music Performance: Vocal/Choral. 3 hours. (3:0) Principles of music performance using vocal and choral media. Nature of and influences on the human voice and its use, performance practices and procedures, and music literature for vocal and choral performance. Prerequisite(s): MUED 2310 and MUED 3200, or consent of college.

4209. Music Performance: Instrumental. 3 hours. (3:0) Principles of music performance using the band and/or orchestra ensemble. Foundations of performance on band and/or stringed instruments, rescoring and arranging for band and/or orchestra, fundamentals of marching band, performance practices, and standard band and/or orchestra literature. Prerequisite(s): 7 credit hours from MUAG 1102, 1117, 1121, 1124, 1125, 1202, 1221, 1224 and 1225; and MUED 1103 and 3200.

4490. Comprehensive Musicianship. 3 hours. Creative approach to music, relationships of theory, composition, history and performance. Independent projects in each area.

4660. Marching Band Methods. 3 hours. Objectives of the marching band related to the total music education program. Organization of the marching band; development of marching style, show planning, charting methods, training and use of auxiliary units, script writing; and arranging; parade marching. Prerequisite(s): MUED 4209 or equivalent, or consent of college.

4850. Seminar in Song Literature for Children. 3 hours. Introduction to the standard song literature and the musical concepts related to that literature appropriate for children, ages 4 to 12. For all music students interested in composing for and performing with children’s ensembles.

5100. Music Supervision. 3 hours. Organization and duties; improving instruction; demonstration teaching; public department curricula. Supervisor’s relation to community; ethics.

5120. Applied Research in Music Education. 3 hours. Theories, techniques and procedures for conducting and understanding research related to human musical behaviors. Open to students in fields other than music. Required for all master’s degree students in music education.

5280. Admission Seminar. 3 hours. Survey of current trends and problems in music education. Evaluation of the student’s qualifications, providing a basis for construction of a degree plan. Required for all master’s degree students in music education.

5300. Instrumental Techniques: Band and Orchestra. 3 hours. Organization of public school bands, orchestras and instrumental programs. Purchase and care of instruments. Conducting; rehearsals and instrumental classes; program building; contests and festivals. May be repeated for credit as topics vary.

5500. History of Music Education in the United States. 3 hours. From 1620 to present; leading personalities, indigenous and black music, musical trends, and concepts in music education.

5510. Philosophical Foundations and Principles of Music Teaching. 3 hours. Analysis of education objectives in music as related to practical concerns of the music teacher; justifications and rationales for music instruction in public schools.

5520. Psychology of Music. 3 hours. Physical factors that constitute musical sound and how these factors are perceived; methods and techniques for measuring musicality in individuals; psychology of learning as applied to music and musical behavior.

5821. Kodaly Concept Musicianship. 1 hour. Skill-based comprehensive study of musical basis of Kodaly-inspired music instruction; pentatony; modes; functional harmony; conducting; ensemble. May be repeated for credit when topics vary. Required concurrent enrollment in MUED 5822 and MUED 5823.

5822. Kodaly Concept Musical Materials. 1 hour. Study of folk music sources, repertoire, styles; transcription and analysis; developing classification and retrieval systems for classroom use; art music in the elementary school. May be repeated for credit when topics vary. Requires concurrent enrollment in MUED 5821 and MUED 5823.

5823. Kodaly Concept Pedagogy and Practicum. 1 hour. Philosophy, principles, pedagogy of Kodaly-inspired approach to music education with emphasis on sequential skill development Grades K-1; Grades 2-3; Grades 4-6; advanced studies. May be repeated for credit as topics vary. Requires concurrent enrollment in MUED 5821 and MUED 5822.
5831. Orff-Schulwerk Ensemble and Pedagogy. 1 hour. Philosophy, principles, instructional strategies of Orff-Schulwerk approach to music education using unpitched and barred instruments in elemental style; pentatonic music-improvisation and orchestration; modal music-improvisation and orchestration; diatonic music-improvisation and orchestration. May be repeated when topics vary. Requires concurrent enrollment in MUED 5832 and MUED 5833.

5832. Orff-Schulwerk Movement. 1 hour. Movement principles, concepts, vocabulary, instructional strategies, repertoire and improvisation; dance forms, accompaniment; movement notation and pedagogy. May be repeated for credit when topics vary. Requires enrollment in MUED 5831 and MUED 5833.

5833. Orff-Schulwerk Recorder. 1 hour. Study of soprano recorder; alto recorder; tenor, bass recorder. May be repeated for credit when topics vary. Requires concurrent enrollment in MUED 5831 and MUED 5832.

5840. Studies in Contemporary Music Education. 3 hours. Organized classes specifically designed to accommodate the needs of students and the demands of program development not met by regular offerings. Short courses and workshops on specific topics organized on a limited-offering basis, to be repeated only upon demand. May be repeated for credit when topics vary.

5880. Teaching Strategies in General Music at Preschool, Elementary, and Middle School Levels of Instruction. 3 hours. For each semester this organized class is offered, one topic from the list below is studied in depth: instructional methodologies, materials, and activities in vocal music for the pre-school, elementary, and middle school student; general music at the middle school level; instrument study for the general music student; curriculum development and instruction to meet the needs of the disabled, mentally challenged and gifted students. May be repeated for credit when topics vary.

5900-5910. Special Problems. 1-3 hours each.

6430. Principles of Music Learning. 3 hours. Principles of music learning with specific attention to the process of learning musical skills and concepts. Included are the application of such learning theories as behaviorism and developmentalism to music, and such specific musical learning theories as those of Gordon, Orff, Kodaly and Suzuki.

6440. Systematic Measurement of Music Behaviors. 3 hours. Measurement with specific applications to the field of music, including music achievement, attitude preference, aptitude, perception, interaction, and music teacher behavior and effectiveness. Principles of measure creation, administration and analysis. Prerequisite(s): MUED 5120 or consent of college. Required of all doctoral candidates in music education.

6470. Sociology of Music. 3 hours. The interrelationship of music and society in the United States. Current uses of music; musical professions; economic aspects of music; research in the sociology of music.

6480. Doctoral Seminar in Music Education. 1 hour. Current trends, concepts, programs and practices. Two semesters required of all doctoral candidates in music education. Pass/no pass only.

6490. Comparative Music Education. 3 hours. Identification and comparison of music education systems, programs and practices in selected countries throughout the world; critical review of cross-cultural research related to the field.

6520. Analysis and Criticism of Research Studies. 3 hours. Critical investigation of selected research studies in music and music education for purposes of evaluating research techniques, studying research designs and establishing validity of conclusions. Prerequisite(s): MUED 5120 or MUMH 5410, and knowledge of elementary statistics. Required of all doctoral candidates in music education.

6580. College Teaching of Music Courses. 3 hours. Principles of organization and instruction for courses in music theory, music education, music literature and history, and applied music. Taught by specialists in each of the fields.

6590. Practicum, Field Problem or Internship. 3 hours. Supervised professional activities in music teaching, conducting, supervision and administration in public departments, junior colleges or senior colleges. The course allows for experimentation in the classroom or rehearsal hall during on-the-job or inservice training periods.

6620. Music, the Arts and the Humanities. 3 hours. Elements and symbols in the creative aspects of the performing and visual arts; objectives and instructional procedures appropriate for courses in music appreciation, integrated arts and aesthetic education; the arts as a part of liberal arts education. Open to graduate students in all academic disciplines.

6900-6910. Special Problems. 1-3 hours each.

Ensembles, Music, MUEN = 0840

4530-4540. Collegium Musicum. 1 hour each. (0;3) Performance of less well-known vocal and instrumental music from the period 1200 to 1800. Prerequisite(s): consent of college.

5040. Graduate Opera Theater. 1 hour. (0;6) Techniques of preparing and performing major roles. Prerequisite(s): consent of college. May be repeated for credit.

5530-5540. Collegium Musicum. 1 hour each. (0;3) Performance of less well-known vocal and instrumental music from the period 1200-1800. Prerequisite(s): consent of college.

5602. Brass Ensembles. 1 hour. (0;3)

5605. Chamber Wind Ensemble. 1 hour. (0;3)

5611. Jazz Ensembles. 1 hour. (0;2)

5616. Chamber Orchestra. 1 hour. (0;3)

5617. Percussion Ensembles. 1 hour. (0;2)

5621. String Ensembles. 1 hour. (0;2)

5624. Vocal Ensembles. 1 hour. (0;3)

5625. Wind Ensembles. 1 hour. (0;2)
5630. Harp Ensemble. 1 hour. (0;3)
5631. NOVA Ensemble. 1 hour. (0;3) Performance of contemporary chamber works for mixed ensembles. Prerequisite(s): consent of college.

**Ethnomusicology, Music, MUET = 0843**

4500. Introduction to Ethnomusicology. 3 hours. A general overview of the discipline of ethnomusicology, including major contributions to the field, history, methodology and practical applications. Case studies are used to illustrate specific theoretical problems encountered in ethnomusicological research.

5210. Seminar in Ethnomusicology. 3 hours. Selected topics in ethnomusicology: current theoretical and practical issues in the discipline. May be repeated for credit as topics vary.

**General Courses, Music, MUGC = 0810**

4890. Studies in Music. 1-3 hours. Organized classes specifically designed to accommodate the needs of students and demands of program development that are not met by the regular offerings. Short courses and workshops on specific topics organized on a limited-offering basis. May be repeated for credit.

5890. Studies in Music. 1-3 hours. Organized classes specifically designed to accommodate the needs of students and the demand of program development that are not met by the regular offerings. Short courses and workshops on specific topics organized on a limited offering basis. May be repeated for credit.

5900-5910. Special Problems. 1-3 hours each. For graduate students of unusual ability in music who may elect to study material not formally listed for instruction.

5930. Research Problem in Lieu of Thesis. 3 hours. Prerequisite(s): MUMH 5410.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of college. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

6900-6910. Special Problems. 1-3 hours each. For doctoral students of unusual ability in music who may elect to study material not formally listed for instruction.

6950. Doctoral Dissertation. 3, 6 or 9 hours. Registration only by consent of college. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.

6951. Dissertation Recital. 3 hours. Prerequisite(s): consent of major professor. Open only to DMA students in performance.

6952. Dissertation Recital. 3 hours. Prerequisite(s): MUGC 6951 and consent of major professor. Open only to DMA students in performance.

6953. Dissertation Recital. 3 hours. Registration only by consent of major professor. Prerequisite(s): MUGC 6951 and 6952; admission to candidacy; and consent of major professor. Open only to DMA students in performance.

6954. Dissertation Recital. 3 hours. Registration only by consent of major professor. Prerequisite(s): MUGC 6951, 6952 and 6953; admission to candidacy; and consent of major professor. Open only to DMA students in performance.

**Music History and Literature, and Musicology, MUMH = 0855**

4050. Symphonic Literature. 3 hours. The orchestra and symphonic forms from Haydn to present; composers, works, score study and listening. May not be repeated at the graduate level as MUMH 5050. (Same as MUMH 5050.)

4070. Operatic Literature. 3 hours. Listening and recognition; musical and dramatic analysis; trends in composition. May not be repeated at the graduate level as MUMH 5070. (Same as MUMH 5070.)

4750. Concerto Literature. 3 hours. Concerto from Baroque to the present. Prerequisite(s): MUMH 1600.

4760. Chamber Music Literature. 3 hours. Chamber music from the Baroque to the present. Prerequisite(s): MUMH 1600.

4770. Masterpieces of Choral Literature. 3 hours. Choral masterpieces from the Renaissance to the present. Prerequisite(s): MUMH 1600.

4780. American Music. 3 hours. Music of American composers from colonial times to the present. Prerequisite(s): MUMH 1600.

4800. Nazism, Judaism, and the Politics of Classical Music in Germany. 3 hours. Explores the connections between Nazi ideology, politics, anti-Semitism, and classical music in Nazi Germany.

4810. Jews, Judaism, Anti-Semitism, and Opera. 3 hours. Explores different roles of Jews in opera, including sympathetic representations by Jewish composers, and negative stereotyping by both Jewish and non-Jewish composers.

4920. Senior Thesis in Music History. 3 hours. (0;0; individual instruction) A major research paper on a specialized topic in music history appropriate to advanced undergraduate standing. Prerequisite(s): MUMH 1600, 3500 and 3510.

5050. Symphonic Literature. 3 hours. The orchestra and symphonic forms from Haydn to present; composers, works, score study and listening.

5070. Operatic Literature. 3 hours. Listening and recognition; musical and dramatic analysis; trends in composition.

5150. Music Criticism and the Aesthetics of Music. 3 hours. Nature of music; relation to architecture, painting, literature and sculpture; design, craftsmanship and criteria in music composition.
5200. Seminar in Musicology. 3 hours. Practical application of musicological techniques to selected research areas; a proseminar. Prerequisite(s): MUMH 5410.

5330. Studies in Music History: Medieval, Renaissance or Baroque. 3 hours. Historical, stylistic, and analytical study of music from one of the following periods: Medieval, Renaissance, Baroque. Period offerings rotate by semester. Lectures with required listening.

5340. Studies in Music History: Classical, Romantic or 20th Century. 3 hours. Historical, stylistic, and analytical study of music from one of the following periods: Classical, Romantic, 20th Century. Period offerings rotate by semester. Lectures with required listening.

5410. Introduction to Research in Music. 3 hours. Introduction to musicology; research techniques and application.

5420. Introduction of Musicology. 3 hours. Important reference works, dictionaries, biographies, periodicals, criticism, philosophy and psychology. Prerequisite(s): MUMH 5410 or consent of college.

5550. History of Musical Instruments. 3 hours. Musical instruments in Western culture from the earliest times; their evolution, influence and use in the central European tradition. Taxonomy, acoustics, design and construction, musical and organological literature.

5900-5910. Special Problems. 1-3 hours each.

6000-6010. Notation. 3 hours each. From 1200 to 1600 A.D.; transcriptions by the student into modern notation. Prerequisite(s): MUMH 5330 or examination.

6020. Medieval Music. 3 hours. Seminar on selected topics in medieval music. Prerequisite(s): MUMH 5330 or examination.

6030. Renaissance Music. 3 hours. Seminar on selected topics in Renaissance music. Prerequisite(s): MUMH 5330 or examination.

6080. Seminar in the Quartets of Beethoven. 3 hours. Forms, style and place in music literature. Prerequisite(s): MUMH 5340 or examination.

6160. Major Composers. 3 hours. Historical, analytical and aesthetic studies of a selected major composer. Prerequisite(s): MUMH 5340 or examination.

6200. Medieval Music. 3 hours. Seminar on selected topics in medieval music. Prerequisite(s): MUMH 5330 or examination.

6350. Performance Practice: Baroque. 3 hours. Study of baroque performance practices. Prerequisite(s): consent of college.

6410. Advanced Jazz Arranging. 3 hours. (2;4) Analysis and composition of music for the modern jazz orchestra. Prerequisite(s): MULB 1808 or consent of department. Corequisite(s): MUJS 3620 with grade of A or B, and MUJS 4610 with grade of C or higher.

6480. Radio and Television Music. 3 hours. Composition, orchestration and production of music for advertising and broadcast. Prerequisite(s): MUJS 3620 or consent of college.

6500. Jazz MIDI Performance Seminar. 3 hours. (2;1) The application of Musical Instrument Digital Interface technology to contemporary jazz composing, arranging and performance. Prerequisite(s): MUJS 2624, Jazz Singers, required. May be applied for credit, contingent on a minimum grade of B.

6510. Advanced Jazz MIDI Techniques. 3 hours. (2;4) Continuation in the New World to the present. Prerequisite(s): MUJS 3620 or consent of college.

6520. Performance Practice: Medieval/Renaissance. 3 hours. Study of medieval and Renaissance performance practices. Prerequisite(s): consent of college.

6530. Performance Practice: Baroque. 3 hours. Study of baroque performance practices. Prerequisite(s): consent of college.

6540. Performance Practice: 1750 to Present. 3 hours. Study of classical, romantic and 20th-century performance practices. Prerequisite(s): consent of college.

6570. Music of the Twentieth Century. 3 hours. Seminar on selected topics in 20th-century music. Prerequisite(s): MUMH 5340 or examination.

6610. Advanced Jazz Arranging. 3 hours. (2;4) Analysis and composition of music for the modern jazz orchestra. Prerequisite(s): MUJS 3620 or consent of college. Corequisite(s): MULB 1808 or consent of department. Prerequisite(s): MUJS 3620 with grade of A or B, and MUJS 4610 with grade of C or higher.

6620. Advanced Jazz Arranging. 3 hours. (2;4) Continuation of MUJS 4610. Prerequisite(s): MUJS 4610 with a grade of A or B.

6700. Jazz MIDI Performance Seminar. 3 hours. (2;1) The application of Musical Instrument Digital Interface technology to contemporary jazz composing, arranging and performance. Prerequisite(s): MUJS 2624, Jazz Singers, required. May be applied for credit, contingent on a minimum grade of B.

6750. Classical Music. 3 hours. Seminar on selected topics in classical music. Prerequisite(s): MUMH 5340 or examination.

6760. Music of the Romantic Era. 3 hours. Seminar on selected topics in 19th-century music. Prerequisite(s): MUMH 5340 or examination.

6770. Music of the Twentieth Century. 3 hours. Seminar on selected topics in 20th-century music. Prerequisite(s): MUMH 5340 or examination.

6900-6910. Special Problems. 1-3 hours each.

Jazz Studies, Music, MUJS = 0845

4120. Vocal Jazz Styles. 2 hours. (1;1) Advanced vocal and recording techniques for the jazz studies major with a vocal concentration. Performing and recording with instrumental groups. Prerequisite(s): MUJS 3120 (four semesters), and completion of vocal concentration requirements. Concurrent enrollment in MUEN 2624, Jazz Singers, required. May be repeated for credit, contingent on a minimum grade of B.

4450. Radio and Television Music. 3 hours. Composition, orchestration and production of music for advertising and broadcast. Prerequisite(s): MUJS 3620 or consent of college.

4470. History of Jazz. 3 hours. A chronological survey of the major styles and artists of jazz, from African acculturation in the New World to the present. Prerequisite(s): MUJS 1470 with grade of C or higher.

4610. Advanced Jazz Arranging. 3 hours. (2;4) Analysis and composition of music for the modern jazz orchestra. Prerequisite(s): MULB 1808 or consent of department. Corequisite(s): MUJS 3620 with grade of A or B, and passing grade in Jazz Studies Proficiency Examination.

4620. Advanced Jazz Arranging. 3 hours. (2;4) Continuation of MUJS 4610. Prerequisite(s): MUJS 4610 with a grade of A or B.

4700. Jazz MIDI Performance Seminar. 3 hours. (2;1) The application of Musical Instrument Digital Interface technology to contemporary jazz composing, arranging and performance. Introduction to MIDI hardware and software. Multi-track programming, recording and editing. Preparation of professional quality project on tape with hard copy printouts of score and parts for performance. Prerequisite(s): MUJS 2370, 3620; MUAG 1014; or equivalent.

4710. Advanced Jazz MIDI Techniques. 3 hours. (2;1) Continuation of MUJS 4700 with emphasis on notation software, sound editor and librarian software and digital sampling techniques. Preparation of a professional quality project involving the printing of a full score and individual parts. Prerequisite(s): MUJS 4700 or consent of college.

5450. Studies in Jazz History. 3 hours. A survey of jazz research materials and methodology, and presentation of special topics in jazz history. Prerequisite(s): MUJS 4610 or consent of college.

5470. Conducting College Jazz Ensembles. 3 hours. Score study and rehearsal preparation; methods of conducting jazz ensembles at all levels; supervised conducting.

5480. Pedagogy of Jazz Improvisation. 3 hours. Techniques, systems and materials. Prerequisite(s): MUJS 3360 and 3370, or consent of college.
5490. Advanced Jazz Improvisation. 3 hours. Advanced techniques and practices of jazz improvisation. Prerequisite(s): MUJS 3370 with grade of A or B, or equivalent.

5760. Jazz Arranging. 3 hours. Individual instruction. An advanced practical study of arranging, focusing on music from jazz and other contemporary jazz-related styles. Prerequisite(s): MUJS 4620 or equivalent. May be repeated for credit as topics vary.

5780. Jazz Styles and Analysis. 3 hours. The stylistic elements of the various eras of jazz history; theoretical analysis of significant musical qualities of influential musicians of the different periods of jazz.

5900-5910. Special Problems. 1-3 hours each.

Music Laboratories, MULB = 0850

5171. Large Ensemble: Choir. 1 hour. (0;4)
5172. Large Ensemble: Orchestra. 1 hour. (0;4)
5173. Large Ensemble: Band. 1 hour. (0;4)
5174. Large Ensemble: Jazz Lab Band. 1 hour. (0;4)
5175. Large Ensemble: Accompanying. 1 hour. (0;4)

Theory, Music, MUTH = 0860

4370. Schenkerian Analysis. 3 hours. (3;0) Analysis of tonal music according to the theory of structural levels and methods of graphic analysis developed by Heinrich Schenker. Prerequisite(s): MUTH 2380 and 2480.

4520 Twentieth Century Techniques. 3 hours. Dodecaphonic and atonal set theory techniques as applied to representative works of the twentieth century. Prerequisite(s): MUTH 2390 and 2490.

4920. Senior Colloquium in Music Theory. 3 hours. In consultation with the instructor, each student is to develop a major paper on a specialized topic in music theory, as appropriate to advanced undergraduate standing. Prerequisite: MUTH 3410, 3420, 3510, 3520 and 3550.

5080. Pedagogy of Theory. 3 hours. Concepts and methodologies relative to the teaching of music theory in the core curriculum; compilation of teaching materials. Prerequisite(s): satisfactory score on Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

5090. Problems in Pedagogy of Theory. 3 hours. Observation, practice and supervised teaching of freshman/sophomore large-lecture, classroom and lab courses. May be repeated for credit as teaching assignments vary. Prerequisite(s): MUTH 5080.

5110. Score Reading at the Keyboard. 1 hour. Practical application of figured bass and score reading at the keyboard from two parts (C and Bass and Treble clefs) to the classic period symphony.

5355. Analytical Techniques I (Ars Antiqua-1700). 3 hours. Application of appropriate analytical approaches and methodologies in music written 900-1700. Prerequisite(s): satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

5360. Analytical Techniques II (1700-1900). 3 hours. Application of appropriate analytical approaches and methodologies in music written 1700-1900. Prerequisite(s): satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

5370. Analytical Techniques III (Post 1900). 3 hours. Application of appropriate analytical approaches and methodologies in music written after 1900. Prerequisite(s): satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383. MUTH 5360 recommended. Prerequisite(s): MUTH 4520 or consent of instructor.

5381. Music Theory Practicum: Analysis. 1 hour. (2;0) Theoretical principles of music from the 17th through early 20th centuries and their application through analysis.

5382. Music Theory Practicum: Aural Skills. 1 hour. (2;0) Theoretical principles of the 17th through early 20th centuries and their application through aural comprehension.

5383. Music Theory Practicum: Keyboard. 1 hour. (1;0) Theoretical principles of the 17th through early 20th centuries and their application through realization at the keyboard.

5400. Invertible Counterpoint and Fugue. 3 hours. Advanced techniques in contrapuntal writing in 18th-century style. Prerequisite(s): MUTH 3420; satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

5470. Advanced Schenkerian Analysis. 3 hours. Advanced analysis of tonal music according to the theory of structural levels and methods of graphic analysis developed by Heinrich Schenker. Prerequisite(s): MUTH 4370; satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

5720. Computer-Assisted Instruction in Music. 3 hours. Survey of computer-assisted instruction (CAI) systems for music. Development of programming and evaluative skills necessary to develop complete CAI systems for music instruction. Prerequisite(s): CSCI 5030, CECS 5110 or CSCI 5330; satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

5900-5910. Special Problems. 1-3 hours each.

6500. Form and Style Analysis I. 3 hours. Identification of structural principles and compositional idioms characteristic of historical eras and representative composers from Ars Antiqua through the early baroque. Prerequisite(s): satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

6510. Form and Style Analysis II. 3 hours. Identification of structural principles and compositional idioms characteristic of historical eras and representative composers from the late baroque through the 20th century. Prerequisite(s): satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

6660. History of Music Theory. 3 hours. Theoretical systems and treatises from antiquity to the late 15th century and analysis of related compositions. Prerequisite(s): MUMH 5410 or 5420 (concurrent enrollment is acceptable), or equivalent; satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.
6670. History of Music Theory. 3 hours. Theoretical systems and treatises from the 16th to early 18th century and analysis of related compositions. Prerequisite(s): MUMH 5410 or 5420 (concurrent enrollment is acceptable), or equivalent; satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

6680. Proseminar in Music Theory. 3 hours. Investigation and research; subject matter variable to meet needs of students. Prerequisite(s): satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383. May be repeated for credit as topics vary.

6690. Problems in Contemporary Notation. 3 hours. Experimental and innovative practices; solving aleatory and other non-specific notation, particularly since 1950. Prerequisite(s): satisfactory score on the Graduate Placement Examination, or MUTH 5381, 5382 and 5383.

6700. Analytical Systems I (1700-1900). 3 hours. Examination of analytical systems from the middle works of Rameau to the harmonic theories of Riemann, Schenker and Schoenberg. Prerequisite(s): MUTH 5360, and MUMH 5410 or 5420 (concurrent enrollment is acceptable), or equivalent.

6710. Analytical Systems II (Post 1900). 3 hours. Examination of analytical systems in the 20th century. Prerequisite(s): MUTH 5370, and MUMH 5410 or 5420 (current enrollment is acceptable), or equivalent.

6900-6910. Special Problems. 1-3 hours each.

Music/Education
see Music

Music/Laboratories
see Music

Musicology, Music History and Literature
see Music

Nuclear Engineering Technology
see Engineering Technology

Philosophy and Religion Studies

Philosophy, PHIL = 0152

4400. Metaphysics. 3 hours. Problems and structures in idealism, realism, naturalism and process metaphysics. Prerequisite(s): consent of department.

4500. Existentialism. 3 hours. The place of man in the world, and his relation to problems of authenticity, anxiety and forlornness; Kierkegaard, Nietzsche, Heidegger and Sartre. Prerequisite(s): consent of department.

4600. Phenomenology. 3 hours. Techniques and principles of phenomenological investigation; Husserl, Scheler and Merleau-Ponty. Prerequisite(s): consent of department.

4700. Environmental Ethics. 3 hours. An examination of basic positions in the field of environmental ethics with emphasis on legal and moral rights for nature, animal liberations and Western philosophical and religious traditions. Prerequisite(s): one previous course in philosophy or consent of department.

4960. Proseminar in Philosophy. 3 hours. Seminar approach to philosophical method; dialectical, phenomenological and/or analytic techniques. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

4970. Capstone Seminar. 3 hours. Seminar on philosophical writing and argument focusing on the comparative study of important figures in the history of philosophy. Prerequisite(s): consent of department.

5110. Seminar in the Theory of Knowledge. 3 hours. Analysis of the essential problems involved in the theory of knowledge, including some of the classical answers to important epistemological problems.

5250. Seminar in the Philosophy of Natural Science. 3 hours. A study of the nature, limits and significances of physics, chemistry, biology and related sciences with emphasis on the similarities and contrasts between scientific and other modes of knowing.


5315. Topics in Ancient Philosophy. 3 hours. An examination of some major problem areas in the history of ancient Western philosophy — for example: concepts of nature, concepts of the character and function of knowledge, concepts of the nature and extent of value. Major thinkers normally covered include Plato and Aristotle.

5335. Topics in Modern Philosophy. 3 hours. An examination of some major problem areas in the history of modern Western philosophy — for example: concepts of nature, concepts of the character and function of knowledge, concepts of the nature and extent of value. Major thinkers covered can include Descartes, Spinoza, Locke, Hume and Kant.

5410. Seminar in Ethical Theory. 3 hours. An examination of a variety of ethical theories and their application in applied situations.

5450. Seminar in the Philosophy of Ecology. 3 hours. Traces the evolution of ecology from its roots in 19th-century natural history through general ecology, restoration ecology, human ecology and mathematical ecology. Also explores the sociocultural contexts in which ecology emerged and now exists, including the so-called second scientific revolution and the two-culture split.

5451. Environmental Ethics. 3 hours. Examination of basic positions in the field of environmental ethics with emphasis on legal and moral rights for nature, animal liberation, and Western philosophical and religious traditions.
4110. Statistical and Thermal Physics. 3 hours. (3;0:1) Basic probability concepts; statistical description of systems of particles; statistical thermodynamics and thermodynamic laws; macroscopic and microscopic descriptions of systems; phase transformation. Prerequisite(s): PHYS 3010/3030.

4150. Experimental Physics I. 3 hours. (1;6) Laboratory experience via use of research-quality instruments. Modern experiments in solid state, atomic and molecular physics. Topics, which may vary, include nonlinear dynamics and chaos in circuits and lasers; SQUIDS and high temperature superconductivity; holography; X-ray diffraction; and electron scanning microscopy. Prerequisite(s): PHYS 3010/3030.

4160. Experimental Physics II. 3 hours. (1;6) Experimental techniques of precision measurements in nuclear and atomic physics. Topics, which may vary, cover recent developments in modern physics suitable for advanced undergraduates and graduate students. Rutherford scattering, low energy nuclear reactions; ion-induced inner-shell ionization at MeV energies; nuclear magnetic resonance to obtain local electronic structure; magnetic transport and magneto-optics; and modern techniques in surface analysis (ion sputtering). Prerequisite(s): PHYS 3010/3030.

4210. Electricity and Magnetism. 3 hours. (3;0:1) Vector treatment of static electric and magnetic fields in free space, multipole field distributions, boundary value problems, fields in material media, and electromagnetic waves. Prerequisite(s): PHYS 2220/2240.

4220. Electromagnetic Waves. 3 hours. (3;0:1) Maxwell’s equations; plane and spherical waves; reflection, refraction, guided waves, radiation and scattering. Prerequisite(s): PHYS 4210.

4310. Quantum Mechanics. 3 hours. (3;0:1) Origins of the modern theory of atomic structure; Schroedinger’s formulation of non-relativistic, single-particle quantum mechanics and application to simple systems; the one-electron atom. Prerequisite(s): PHYS 3010/3030.

4350. Advanced Modern Physics I – Atomic and Molecular Physics. 3 hours. Introduction to various quantum mechanical models of atomic and molecular structure and spectra. Hydrogen atom and simple spectra; external fields, line splitting; line broadening; addition of angular momentum and spin; effective fields, variational method; Hartree and Hartree-Fock theory; structure and spectra of multielectron atoms; Rydberg atoms; molecular binding; rotational, vibrational and electronic states and spectra of diatomic molecules. Prerequisite(s): PHYS 4310.

4360. Advanced Modern Physics II – Nuclear and Particle Physics. 3 hours. Comprehensive study of nuclear structure and dynamics; survey of particle physics; properties of the nuclear force; interpretation of experimental data via specific many-body models; interaction of radiation with matter; classification of particles and nuclei; scattering theory; conservation laws and symmetry; and contemporary results. Prerequisite(s): PHYS 4350.
4420. Physical Optics. 3 hours. (3;0;1) Huygens’ principle and application to geometrical optics; interference phenomena; Fraunhofer and Fresnel diffraction; polarization; electromagnetic theory of light and interaction with matter. Part of the instruction will be in a laboratory setting. Prerequisite(s): PHYS 2220/2240.

4500. Introduction to Solid-State Physics. 3 hours. An introduction to the major areas of solid-state physics, including crystal structure and symmetry, lattice vibrations and phonons, thermal properties, energy bands, semiconductors, superconductivity, and magnetic properties. Prerequisite(s): PHYS 3010.

4550. Modern Classical Dynamics. 3 hours. Introduction to nonlinear dynamical systems; onset of chaos, phase space portraits, universality of chaos, strange attractors, experimental verification, fluid dynamics and the KAM theorem. Prerequisite(s): PHYS 3220.


4710. Foundations of Theoretical Physics. 3 hours. Overview of topics in theoretical physics. Symmetry; mechanics: Newton’s laws, celestial mechanics, Hamiltonian formalism; electromagnetism: Maxwell’s equations, nonlinear optics and classical field theory, quantum optics, lasers, chaotic diffraction; quantum mechanics: measurements and scattering theory; statistical physics: entropy, equilibrium statistical mechanics; and contemporary areas: fractals, chaos and nonlinear dynamics. Topics may vary. Prerequisite(s): PHYS 4210, 4310; PHYS 4110, which may be taken concurrently.

4960-4970. Science Institute (Physics). 1-6 hours each. For students accepted by the university as participants in special institute programs. May be repeated for credit but not to exceed a total of 6 hours in each course.

5450. Survey of Solid State Physics. 3 hours. A course designed to acquaint the student with the major areas of solid state physics. Simple models and physical insight to solid state phenomena are stressed. Intended for physics students of all specializations. Topics include crystal structure, crystal symmetry, reciprocal lattice, X-ray diffraction, crystal binding, phonons and lattice vibrations, thermal properties, free electron theory, semiconductors, superconductivity and magnetic properties. Prerequisite(s): PHYS 4110.


5510. Quantum Mechanics II. 3 hours. Scattering theory; spin, angular momentum; WKB and variation method; time-independent and time-dependent perturbation theory; identical particles; applications; relativistic waves equations. Prerequisite(s): PHYS 5500.

5610. Selected Topics in Modern Physics. 3 hours. Selected topics of contemporary interest in physics. Prerequisite(s): consent of department. May be repeated for credit as topics vary with consent of department chair.

5700. Computational Physics. 3 hours. Symbolic and numerical evaluation of single-variable and multi-variable integrals with a single line of programming; symbolic evaluation of derivatives; symbolic manipulation of lists including vectors and matrices; data analysis; multidimensional plots; symbolic derivations; symbolic and numerical solutions to single and multiple, linear and nonlinear, differential and partial differential equations; probability densities and Monte Carlo methods; and random walk and classical trajectory simulations.

5710. Advanced Classical Mechanics I. 3 hours. Variational principles and Lagrange’s equations. Central force problem. Rigid body motion. Hamilton’s equations; canonical variables and transformations; action-angle variables; Hamilton-Jacobi theory. Prerequisite(s): PHYS 3220 or consent of department.

5720. Electromagnetic Theory I. 3 hours. Maxwell’s equations, vector, scalar potentials; gauge transformations; wave equation; conservation theorems; boundary conditions; statics. Non-dissipative media and dispersion; dissipative media; reflection and refraction; guided waves. Prerequisite(s): PHYS 4210 and 6000 (concurrent), or consent of department.

5750. Selected Topics in Materials Physics. 3 hours. Topics from specialized areas of materials science, physics, chemistry. Integrated circuit fabrication and materials. Transmission electron microscopy. May be repeated for credit as topics vary.

5900-5910. Special Problems. 1-6 hours each. Special problems in advanced physics for graduate students. Problem chosen by the student with the approval of the supervising professor and the department chair.

5920-5930. Research Problems in Lieu of Thesis. 3 hours. An introduction to research; may consist of an experimental, theoretical or review topic.

5940. Seminar in Current Literature of Physics. 1-3 hours. Required each semester of all graduate students in physics.

5941. Colloquium. 1 hour. Weekly lectures by faculty and invited guests on topics of current interest in contemporary physics.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.
5960-5970. Science Institute. 1-6 hours each. For students accepted by the university as participants in special institute programs. May be repeated for credit, not to exceed a total of 6 hours in each course. Laboratory fee required.

5980-5990. Special Problems. 1-3 hours each. Special problems in advanced physics for graduate students. Problem chosen by the student with the approval of the supervising professor.


6001. Mathematical Methods of Physics II. 3 hours. Floquet theory, Mathieu and Hill equations, elliptic functions, vector spaces and Hilbert spaces, linear operators and elements of spectral theory. Green’s functions; integral equations; non-linear wave equations and approximation techniques. Prerequisite(s): PHYS 6000.

6010. Advanced Classical Mechanics II. 3 hours. Non-linear dynamics; chaos; fractals; classical field theory; hydrodynamics and non-linear waves. Prerequisite(s): PHYS 5710.


6110. Statistical Mechanics I. 3 hours. Equilibrium classical and quantum statistical mechanics and thermodynamics with applications to real gases, liquids, solids, spin systems and phase transitions. Prerequisite(s): PHYS 4110 and 5510.

6120. Statistical Physics. 3 hours. Non-equilibrium classical and quantum statistical mechanics, including Boltzmann equations, BBGKY hierarchy, transport theory and dielectric properties of systems; fluctuations and irreversible processes. Prerequisite(s): PHYS 6110 or consent of department.

6155. Communication in Scientific Teaching and Research. 3 hours. Basics of technical writing; techniques for seeking and obtaining research funding; research proposal writing; research presentations; research publications; job applications and interviewing; the workings and organization of academic institutions, government agencies, and private industry.

6160. Introduction to Scattering Theory I. 3 hours. Partial waves; effective range theory; integral equation approach; resonances; bound states; Variational and R-Matrix methods. Emphasis on applications. Prerequisite(s): PHYS 5510.

6161. Introduction to Scattering Theory II. 3 hours. Time-dependent potential scattering, the general theory of collisions, electron-ion collisions, resonances, ion-ion collisions, ion-atom collisions, density matrix formulation and atoms in intense fields. Emphasis on applications.

6330. Atomic and Molecular Physics I. 3 hours. Atomic, molecular structure; construction of periodic table. Experimental basis. One-, few- and many-electron systems; Hartree-Fock, Thomas Fermi methods; inner and outer shell phenomena. Prerequisite(s): PHYS 5510.

6340. Atomic and Molecular Physics II. 3 hours. Applications of scattering theory. Born approximation, phase shifts, effective range theory; density operator; scattering and transition matrices. Interaction of large and weak EM fields with matter. Laser spectroscopy. Prerequisite(s): PHYS 6330.

6450-6460. Advanced Solid State Physics. 3 hours each. A two-course sequence designed to prepare graduate students for research in several areas of current interest in solid state physics. Topics include lattice vibration and phonon spectra; band theory, including calculational schemes, symmetry considerations and application to metals and semiconductors; optical and magnetic properties of solids. Prerequisite(s): PHYS 5510 and 5450, or consent of department.

6500-6510. Advanced Quantum Theory. 3 hours each.

6500. Dirac and Heisenberg formalisms, second quantization and quantum theory of radiation. Dirac equation and its applications. Prerequisite(s): consent of department.

6510. Quantization of Dirac, Klein-Gordon fields, interactions, S-matrix theory, perturbation theory and applications. Prerequisite(s): PHYS 6500 or consent of department.

6750. Selected Topics in Theoretical Physics. 3 hours. Advanced topics selected from areas of theoretical and mathematical physics, including relativity, field theory, elementary particles and the many-body problem. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

6800. Selected Topics in Solid State Physics. 3 hours. Advanced topics selected from specialized areas of solid state physics. Prerequisite(s): consent of department. May be repeated for credit as topics vary.

6900-6910. Special Problems. 1-3 hours each. Special problems in experimental or theoretical physics for advanced graduate students. Problem chosen by the student with the approval of the supervising professor.

6940. Individual Research. 1-12 hours. To be scheduled by the doctoral candidate engaged in research. May be repeated for credit.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.
Political Science

Political Science, PSCI = 0158

4020. Urban Politics. 3 hours. The city in social order; political machinery of central city and suburbs; types of conflicts, policies, leadership groups; metropolitan government.

4100. Political Parties. 3 hours. Development, nature, problems, organization, operation and functions.

4120. Public Opinion and Participation. 3 hours. Shaping factors, communication techniques, public opinion, governmental action and democracy.

4130. American Intergovernmental Relations. 3 hours. Federal system; constitutional and theoretical bases of federalism; national/state/local government conflict and cooperation; regional arrangements; political centralization; impact upon American traditions; future prospects. (Same as PADM 4130.)

4140. The Presidency. 3 hours. Development of power, influence and limitations of the chief executive; selection, office, changing role and problems of control.

4200-4210. Constitutional Government and Law in the United States. 3 hours each. Constitution of the United States; work of the Supreme Court, and effects of decisions on national and state government.

4200. Constitutional Law: Discrimination and the Powers of the Government. 3 hours. Decisions of the United States Supreme Court; scope of legislative, executive and judicial power; presidential power in war and foreign affairs; clash of national and state power; economic liberties and property rights; racial and gender discrimination.

4210. Constitutional Law: Rights and Liberties. 3 hours. Decisions of the United States Supreme Court; freedom of religion, speech and press; rights of criminal defendants; right to privacy.

4220. Jurisprudence. 3 hours. Law in the modern state, meaning and objects, sources and growth, and conceptions of rights and justice. Prerequisite(s): 3 hours in public law.

4320. American Political Theory. 3 hours. American political thought since Colonial beginnings.

4330. Topics in Political Theory. 3 hours. This course will address either the work of selected theorists, such as Plato, Thucydides, Machiavelli, Locke or Marx, or themes, such as morality and politics, liberalism and authoritarianism. May be repeated for credit as topics vary.

4450. Public Policy Analysis. 3 hours. Policy making, impact of public policy and factors that place specific problems on the public agenda. (Same as PADM 4450.)

4490. Topics in Public Policy. 3 hours. Analysis of the making, implementation and evaluation of major policy issues in the United States. Representative topics include aging, defense, civil rights, economic growth, education, environment, health care and poverty. Prerequisite(s): PSCI 1040, PSCI 1050 and PSCI 2300 or its equivalent. May be repeated for credit as topics vary.

4520. International Human Rights. 3 hours. Consideration of the concept and role of human rights in international affairs.

4620. Political Change. 3 hours. Cross-national analysis of processes of modernization and political development; selected developing nations.

4630. The Military in Politics. 3 hours. Involvement of the world's military forces in domestic politics, government and policy making, especially in the non-Western nations of Africa, Asia, Latin America and the Middle East. Topics include civil-military relations, military forces as interest groups, military intervention and the coup d'etat, and military performance in government.

4640. Revolution and Political Violence. 3 hours. Causes and consequences of revolution and other forms of political violence in nations.

4650. Comparative Public Policy. 3 hours. Public policy and policy making in Westernized democratic nations. Analysis and evaluation of public policies. Introduction to cross-national policy study techniques.

4660. Democracy and Democratization. 3 hours. Explores democracy's nature, causes of democratization, the spread of democracy in the world, and problems of consolidation of democracy.

4700. Topics in Comparative Politics. 3 hours. Major areas of research and controversy in the politics of contemporary nations. Representative topics include political socialization, peasant movements, political recruitment and judicial politics. May be repeated for credit as topics vary.

4710. Middle East Politics: Critical Issues. 3 hours. Overview of Middle Eastern regional politics. Attention is given to such issues as legitimacy, authority, identity, military, democracy and religious fundamentalism.

4720. Ethnicity in World Politics. 3 hours. Consideration of the concepts of ethnicity and nationalism as divisive elements in world affairs.

4800. The Politics of International Organization. 3 hours. The formation of policy at the international level on questions of military security, the environment, the international economy, economic development through the United Nations and related agencies, and the place of the multinational corporation in world affairs.

4810. International Law. 3 hours. Theoretical and political foundations of the law among nations; formation, change, application and enforcement of law; modern trends. Prerequisite(s): PSCI 3200 or 3810, or consent of instructor.

4820. Contemporary International Problems. 3 hours. Major contemporary problems and conflicts confronting the international system. Prerequisite(s): consent of instructor. May be repeated for credit as topics vary.

4830. American Foreign Policy. 3 hours. Principles and bases on which American foreign policy rests; machinery and personnel for policy formulation.

4840. Major Problems of American Foreign Policy. 3 hours. Recent policies, decision making, implementation and coordination.
4850. Critical Issues in World Politics. 3 hours. Examination of major issues in world politics, including potential for war, religious fundamentalism, morality, weapons of mass destruction, and diminishing resources.

4860. International Political Economy. 3 hours. A study of the politics of economic issues in international affairs, including the creation, maintenance and decay of international cooperation in trade; monetary and financial relations among Western countries; the roles of state and non-state participants; conflict and cooperation in East-West and North-South international economic relations; and an examination of the imperialist and world systems approaches to international affairs.

5020. Proseminar in American Government and Politics. 3 hours. Concepts, research, analytical methods and literature drawn from the leading scholars in the various areas of the field.

5050. Seminar in American Government and Politics. 3 hours. Analysis of pertinent government and political problems confronting the American people on the national, state and local levels. May be repeated for credit as topics vary.

5220. Proseminar in Public Law. 3 hours. Concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

5230. Seminar in American Public Law. 3 hours. The legal framework within which American governmental processes operate; analysis of substantive legal rules and basic processes by which law is made and applied. May be repeated for credit as topics vary.

5310. Proseminar in Political Theory. 3 hours. Explores the variety of concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

5340. Seminar in Political Science Scope and Methods. 3 hours. Concepts, trends and research design in political science.

5350. Topics in Political Theory. 3 hours. Study of selected theorists or themes in political philosophy. Seminar may include works of ancient, medieval or modern theorists, focusing on issues of power and justice, human nature and politics, and the nature of the best political system. Themes might include liberalism and conservatism, ethics and international politics, or American political thought. May be repeated for credit as topics vary.

5420. Proseminar in Public Administration. 3 hours. Concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

5610. Proseminar in Comparative Government. 3 hours. Concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

5650. Seminar in Area Studies. 3 hours. The institutions and processes of the major regional areas of the world: Africa, Asia, Europe, the former Soviet Union, Western Europe, Latin America and the Commonwealth. May be repeated for credit as topics vary.

5810. Proseminar in International Relations. 3 hours. Concepts, research, analytical methods and literature drawn from leading scholars in various areas of the field.

5820. Seminar in International Relations. 3 hours. Selected problems and concepts related to the theory and practice of international politics, international law, and organization and foreign policy. May be repeated for credit as topics vary.

5900-5910. Special Problems. 1-3 hours each. Conference courses open to advanced students capable of doing independent research under the direction of the instructor. Prerequisite(s): consent of department chair.

5950. Master’s Thesis. 3 or 6 hours. To be scheduled only with consent of department. 6 hours credit required. No credit assigned until thesis has been completed and filed with the graduate dean. Continuous enrollment required once work on thesis has begun. May be repeated for credit.

6000. Research Seminar. 3 hours. Specialized study and research in the field of political science. May be repeated for credit.

6100. Political Science Teaching and Research. 3 hours. Classroom methods for political science instruction, as well as basic research and job-hunting skills. Pass/no pass. May be repeated for credit as topics vary. Hours may not count toward graduate degree plans.

6320. Quantitative Political Research Methods. 3 hours. Empirical research design and contemporary statistical applications in political science, including an introduction to the use of computers. An undergraduate introductory statistics course would be useful prior to registering for this course.

6340. Time Series Methods for Political Data. 3 hours. Focuses on methods for analyzing dynamic relationships among political variables. Topics include pooled cross-sectional time series designs, ARCH, ECM, State-Space, VAR and Box-Jenkins-Tiao intervention-transfer function models. Emphasis is placed on the application of these methodologies using mainframe and microcomputer programs such as BMDP, MICROCRUNCH, RATS and SPSS PC + TRENDS. Prerequisite(s): PSCI 6320 or consent of instructor.

6900-6910. Special Problems. 1-3 hours each. Conference courses for doctoral students. Directed reading and research in fields of special interest. Prerequisite(s): consent of department.

6950. Doctoral Dissertation. 3, 6 or 9 hours. To be scheduled only with consent of department. 12 hours credit required. No credit assigned until dissertation has been completed and filed with the graduate dean. Doctoral students must maintain continuous enrollment in this course subsequent to passing qualifying examination for admission to candidacy. May be repeated for credit.