CSci 5115. User Interface Design, Implementation and Evaluation. (3 cr. Prereq--4041 or #) Theories of user interface design, prototyping and evaluation of interactive user interface applications. Human capabilities and limitations, interface design and engineering, and topics such as data visualization and World Wide Web. Course is built around a group project.

CSci 5116. GUI Toolkits and Their Implementation. (3 cr. Prereq--5115 or 5107 or #) Design and structure of user interface toolkits and frameworks. Aspects of GUI toolkits (e.g., window system protocols, event processing, object-oriented interface). Course is built around implementation assignments and case studies of toolkits.

CSci 5131. Advanced Internet Programming. (3 cr. §4131. Prereq--5106 or 5211 or # (4081 or 5801). 5707 recommended) Issues in internet programming: Java programming, concurrent programming, work flow, distributed databases, security, collaborative computing, object-oriented interface. Course is built around internet programming assignments and projects.

CSci 5161. Introduction to Compilers. (3 cr. Prereq--4011 or #) Theories and mechanisms of programming language processing tools. General compiler organization: lexical scanner, syntax parser, symbol table, internal program representation, code generation. Relationship between design and implementation. Run-time memory management mechanism.

CSci 5204. Advanced Computer Architecture. (3 cr. §8203. S3EE 8365, S3EE 5364, Prereq--4203 or EE 4363) Instruction set architecture, processor microarchitecture, memory, I/O systems. Interactions between computer software and hardware. Methodologies of computer design.

CSci 5211. Data Communications and Computer Networks. (3 cr. §4211. Prereq--4061 or #) Fundamental concepts, principles, protocols, and applications of computer networks. Layered network architectures, data link protocols, network layer routing protocols, transport, congestion/flow control, networking high-speed networks, network programming interfaces, networked applications. Case studies using Ethernet, Token Ring, FDDI, TCP/IP, ATM, Ethernet, HTTP, and WWW.


CSci 5403. Computational Complexity. (3 cr. Prereq--4041 or #) Computational models, complexity measures in each model, and related complexity classes.


CSci 5451. Introduction to Parallel Computing: Algorithms, Architectures and Programming. (3 cr. Prereq--4041 or #) Parallel architectures design, embeddings, routing, examples of parallel computers, fundamental communication operations, performance metrics, parallel algorithms for sorting, matrix problems, graph problems, dynamic load balancing, types of parallelisms, parallel programming paradigms, message passing programming in MPI, data parallel programming in HPF, shared-address space programming in threads.

CSci 5471. Modern Cryptography. (3 cr. Prereq--[2011, 4041], familiarity with number theory or finite fields or #) Introduction to cryptography. Theoretical foundations, practical applications. Threats, attacks, and countermeasures, including cryptosystems and cryptographic protocols. Secure systems/networks. History of cryptography, encryption (conventional, public key), digital signatures and key management, message authentication codes, identification, authentication, applications.


CSci 5512W. Artificial Intelligence II. (3 cr. §5519. Prereq--5511 or #) Advanced topics in AI for solving complex problems. Machine learning (symbolic/neural networks approaches), genetic algorithms, reasoning with uncertainty, utility theory and decision theoretic methods, natural language processing, perception robotics, introduction to Prolog programming language.


CSci 5551. Introduction to Intelligent Robotic Systems. (3 cr. Prereq--5511 or #) Transformations, kinematics/inverse kinematics, dynamics, control. Sensing (vision, force control, tactile sensing), applications of sensor-based robot control, robot programming, mobile robotics, and microrobotics.


CSci 5561. Computer Vision. (3 cr. Prereq--5511 or #) Issues in perspective transformations, edge detection, image filtering, image segmentation, and feature tracking. Complex problems in shape recovery, stereo, active vision, autonomous navigation, shadows, and physics-based vision. Applications.


CSci 5801. Software Engineering I. (3 cr. §4801W. Prereq--[1902, 2011] or #) Advanced introduction to software engineering. Software life cycle, development models, software requirements analysis, software design, coding, maintenance.

CSci 5802. Software Engineering II. (3 cr. Prereq--5801 or #) Introduction to software testing, software maturity models, cost specification models, bug estimation, software reliability models, software complexity, quality control, and experience report. Student groups specify, design, implement, and test partial software systems. Application of general software development methods and principles from 5801.

CSci 5900. Special Topics in Computer Science. (1-3 cr. max 9 cr. Prereq--#) Lectures and informal discussions on current topics in computer science.

CSci 5991. Independent Study. (1-3 cr. max 9 cr. Prereq--# may be repeated for cr) Independent study arranged by CS faculty member.

CSci 5994. Directed Research. (1-3 cr. max 9 cr. Prereq--# may be repeated for cr) Directed research arranged with faculty member.

CSci 5996. Curricular Practical Training. (1 cr. max 3 cr. S-N only Prereq--[CSci or CompE] major, #) Industrial work assignment involving advanced computer technology. Reviewed by faculty member. Grade based on final report covering work assignment.
Coptic (Copt)
Department of Classical and Near Eastern Studies
College of Liberal Arts

Copt 5001. Elementary Coptic. (3 cr)
Introduction to Coptic grammar and vocabulary, chiefly in the Sahidic dialect.

Copt 5002. Elementary Coptic. (3 cr; Prereq–Copt 5001 or equiv)
Reading a variety of Coptic literature, such as Gnostic, martyrlogical, or monastic texts.

Cultural Studies and Comparative Literature (CSCL)
Department of Cultural Studies and Comparative Literature
College of Liberal Arts

CSCL 1001. Introduction to Cultural Studies: Rhetoric, Power, Desire. (4 cr)
Ways of reading texts, artistic forms, everyday practices that define ongoing conflicts over meaning, value, truth. Examples from visual arts, music, film, literature, myth, ritual, built environment.

CSCL 1101. Literature. (4 cr)
Introduction to literature across time, national boundaries. Begins generally, including poetry, novel, drama, historical/philosophical writing. Key questions: What is literature? What forms does it take? Why does literature matter?

CSCL 1201. Introduction to Cinema and Media Culture. (4 cr)
Critical analysis of films, particularly as they emerge within context of mass culture. Determining discursive specificity of cinema, network of institutions that expose this discourse to other media discourses. Rudiments of film theory. Brief engagement with production.

CSCL 1301W. Reading Culture: Theory and Practice. (4 cr)
How can we understand the concepts of culture, cultural conflict? Emphasizes practice in reading cultural theory. Texts such as film, literature, music, fashion, commercial art, built environment.

CSCL 1401W. Reading Literature: Theory and Practice. (4 cr)
How can we read/understand different ways that literature is meaningful? Emphasizes practice in reading a broad spectrum of world literature, literary theory.

CSCL 1501W. Reading History: Theory and Practice. (4 cr)
What is history? How can we understand its meanings/uses? Emphasizes practice in reading cultural texts from various historical perspectives.

CSCL 1903. Freshman Seminar. (3 cr [max 6 cr]; A-F only. Prereq–Fr or no more than 36 cr)
Topics specified in Class Schedule.

CSCL 1904. Freshman Seminar. (3 cr; A-F only. Prereq–Fr or no more than 36 cr)
Topics specified in Class Schedule.

CSCL 1905. Freshman Seminar. (3 cr; A-F only. Prereq–Fr or no more than 36 cr)
Topics specified in Class Schedule.

CSCL 1907W. Freshman Seminar. (3 cr; A-F only. Prereq–Fr or no more than 36 cr)
Topics specified in Class Schedule.

CSCL 1921. Introduction to Film Study. (4 cr)
Fundamentals of film analysis and an introduction to the major theories of the cinema, presented through detailed interpretations of representative films from the international history of the cinema.

CSCL 3000. Topics. (1-3 cr [max 2 cr])
Selected topics.

CSCL 3115. Cinema and Ideology. (4 cr)
The cinema as a social institution with emphasis on the complex relations it maintains with the ideological practices that define both the form and the content of its products. Specific films used to study how mass culture contributes to the process of shaping beliefs and identities of citizens.

CSCL 3172. Music as Discourse. (3 cr)
Close examination of widely varying musical forms and styles, “classical” and “popular,” in relation to human subjectivity and configurations of culture, ideology, and power.

CSCL 3173W. The Rhetoric of Everyday Life. (3 cr)
How discourses in the history, business, and power supporting it. Literary language, advertising, electronic media; film, visual and musical arts, built environment and performance. Techniques for analyzing language, material culture, and performance.

CSCL 3174. Poetry as Cultural Critique. (3 cr)
Examines the status of “poetry” in several cultures of the Americas bringing together techniques of close reading and broad cultural inquiry.

CSCL 3175. Comedy: Text and Theory. (3 cr)
Comedy as a discursive/practical practice. Jokes, stand-up routines, plays, films, satire, and social ritual. Philosophical, literary, psychological, anthropological, feminist, and postmodern theory.

CSCL 3176. Oppositional Cinemas. (4 cr)
The ways diverse national cinemas engage the international hegemony of Hollywood cinema. The cinematic struggle against cultural imperialism and the role of race, class, and gender in the domain of international cultural politics.

CSCL 3177. On Television. (4 cr; §SCMC 3177)
Key debates in the history, theory, and criticism of television. Focuses on critical/creative "readings" of television's past/present forms. TV's influence on film, music, and digital media.

CSCL 3179. Reading Literary Movements. (3 cr)
Literary movement that emerge when a group of writers puts forth a new definition of literature. Literary movements created by scholars after the fact. Focuses on one or two related movements (e.g., surrealism and dadaism).

CSCL 3312W. Theories of Culture. (3 cr)
Examination of three prevalent theoretical perspectives on culture—philosophical, anthropological, and aesthetic—as they converge in the work of writers who have contributed to our contemporary conception of cultural diversity.

CSCL 3331. Science and the Humanities. (3 cr)
The sciences and humanities battle over “truth” and “reality,” while technology recasts the world of knowledge and work. The question of texts-as-truth also facilitates the ongoing religious attacks on science in this millennial moment.

CSCL 3361. Visions of Nature: The Natural World and Society. (3 cr)
Perspectives on culture—philosophical, anthropological, and aesthetic—as they converge in the work of writers who have contributed to our contemporary conception of cultural diversity.

CSCL 3361. Landscape, Nature, and Society. (3 cr)
Introduction of the concept of nature in Anglo-American culture in the period 160-1875. Focuses on role of property relations, travel and exploration, religion, and manners. Topics include “the Garden in the Wilderness,” English landscape gardens, American painters of the West, and the sublime.

CSCL 3412W. Psychoanalysis and Literature Part I: The Essential Freud. (3 cr)
Theoretical writings of Sigmund Freud; basic concepts of psychoanalytic criticism; dream and interpretation; genre of the case study; Freud’s ideas concerning the constitution of ethnicity, culture, identity, and gender; fantasy vs. reality; psychoanalysis of the author/narrative culture.

CSCL 3413W. Psychoanalysis and Literature Part II: Post Freudian Criticism. (3 cr)
Impact of psychoanalytic discourses on literary studies and vice versa. Archetypes of Jung; structural of Lacan; poststructural of Derrida and Kristeva; feminist psychoanalysis of Mitchell; self/object of Kernberg and Kohut; the unconscious and society of Deleuze and Guattari.

CSCL 3421. Culture and the Production of Modern Identity I: 1600-1750. (3 cr)
History of cultural, perceptual and/or conceptual changes in Western societies, 1600 to 1750, concerning new and conflicting understandings of the human imagination, subjectivity, identity, and the body; addressed through philosophy, literature, visual arts, music, medical and medical treatment, and manners.

CSCL 3422. Culture and the Production of Modern Identity II: 1750-1900. (3 cr)
History of cultural, perceptual and/or conceptual changes in Western societies, 1750 to 1900, concerning new and conflicting understandings of the human imagination, subjectivity, identity, and the body; addressed through philosophy, literature, visual arts, music, medical and medical treatment, and manners.

CSCL 3456W. Sexuality and Culture. (3 cr)

CSCL 3458W. The Body and the Politics of Representation. (3 cr)
Western representation of the human body, 1500 to present. Body’s appearance as a site and site for production of social and cultural difference (race, ethnicity, class, gender). Visual arts, literature, music, medical treatments, courtesy literature, erotica.

CSCL 3461. Monsters, Robots, Cyberogs. (3 cr)
Historical/critical reading of figures (e.g., uncanny double, monstrous aboriginal, technological hybrid) in mythology, literature, and film, from classical epic to sci-fi, cyberpunk, and Web.

CSCL 3472. Gay Men and Homophobia in American Culture. (3 cr)
The historical experience of gay men, the social construction of same-sex desire in American society since 1700, studied in a broad context of cultural history and discourse, including literature and the arts, journalism, science and medicine, religion, and law.

CSCL 3557. Close Reading. (3 cr)
History/theory of “close reading” (i.e., the most intense encounter between reader and text) exemplified through critical texts. Students perform close readings of various texts.

CSCL 3631. Jewish Writers and Rebels in German, Austrian, and American Culture. (3 cr; §Ger 3631, §JwSt 3631)
Prereq–No knowledge of German required; cr toward major or minor requires reading in German

CSCL 3771. Basic Concepts of Literary Study. (3 cr)
Concepts used when carrying out work of reading/interpretation. How analysis works in aspects of distinction between text/context, other concepts. How to understand/justify literary interpretation. Course does not engage in the reading of literature.
Course Descriptions

CSCL 3910. Topics in Cultural Studies and Comparative Literature. (3 cr)
Topics specified in Class Schedule.

CSCL 3920. Topics in Cultural Studies and Comparative Literature. (2 cr)
Topics specified in Class Schedule.

CSCL 3979. Issues in Cultural Pluralism. (3 cr)
Critical/comparative basis for study of racial, ethnic, and cultural communities, primarily in the U.S.; Perspectives on identity, citizenship, democracy, and power.

CSCL 3993. Directed Study. (1-3 cr [max 9 cr]. Prereq–#. A, D)
Guided individual reading or study.

CSCL 4944H. Honors Thesis. (3 cr. Prereq–Candidate for [magna or summa] honors in CSCL, consent of CSCL honors adviser)
Magna or summa honors thesis.

CSCL 4993. Directed Study. (1-3 cr [max 6 cr]; A-F only)
Guided individual study.

CSCL 5147. Teaching as Dialogue. (3 cr)
Teaching and the teacher are the subject. Entering into dialogue is the method. Issues with the politics of teaching, the means of entering into dialogue, questions of judgment and the idea of self-teaching as the goal of teaching.

CSCL 5154W. Theoretical Constructions of Space. (3 cr)
Inquiry into theories of space drawn from various disciplines including anthropology, architecture, geography, history, landscape design, philosophy, planning, and sociology. Focus on sociopolitical interests that are served and sustained; emphasis on opportunities and implications for personal identity.

CSCL 5256. Suburbia. (3 cr)
Suburbia from origins in 18th-century England to the present. Historical changes and present challenges, especially in America. Ideology, mythology, planning, development, geography, transportation, the family. Specific sites and designs; representations in film, television, popular literature, and music.

CSCL 5301. Society, Ideology, and the Production of Art. (3 cr)
Recent critical theories on the relation of the arts to social and ideological forces; selected artifacts from Western culture (Renaissance to 20th century; high, popular, and mass culture). Music, visual art, literature.

CSCL 5302. Aesthetics and the Valuation of Art. (3 cr)
Society, ideology, and aesthetic value considered in light of recent critical theories of visual art, music, and literature. Meditations of place, social class, gender and ideology on aesthetic judgment in post-Renaissance Western culture.

CSCL 5331. The Discourse of the Novel. (3 cr)
Comparative study of the novel, 18th century to present. Its relations to ordinary language practices, emergent reading publics, technologies of cultural dissemination, problems of subjectivity, and its role in articulating international cultural relations.

CSCL 5555. Introduction to Semiotics. (3 cr)
Problems of the nature of the sign; sign function; sign production; signifying systems as articulated in philosophy, linguistics, anthropology, psychoanalysis, and art theory. Application of semiotics to various signifying practices (literature, cinema, daily life).

CSCL 5711. Sociocriticism. (3 cr)
Sustained consideration of the modern tradition of sociological reflection on literature. Early and late Birmingham School, Frankfurt School, Bakhtin circle, and the various French initiatives associated with both Les Temps Modernes and Tel Quel.

CSCL 5835. Richard Wagner’s “Der Ring des Nibelungen”: Music, Myth, and Politics. (3 cr. Prereq–#)
Literary and musical analysis and historical context of the four operas of Wagner’s “Ring”. Das Rheingold, Die Walküre, Siegfried, Götterdämmerung. Critical assessment of Wagner’s achievement and influence.

CSCL 5910. Topics in Cultural Studies and Comparative Literature. (3 cr [max 24 cr])
Topics specified in Class Schedule.

CSCL 5993. Directed Study. (1-3 cr [max 9 cr]. Prereq–#. A, D)
Guided individual reading or study.

Curriculum and Instruction (CI)
Department of Curriculum and Instruction

College of Education and Human Development

CI 1001. Introduction to the Elementary School. (3 cr; A-F only)
Three modules focus on important aspects of contemporary urban elementary school teaching: the principal’s role, the teacher’s role, and the students. Central to each module are school-based visits, observations, and interviews.

CI 1911. Ethics, Wealth, and Education in a Democracy. (3 cr; A-F only)
Relationship between democratic citizenship and education. Role of economics/ethics in defining character of education. Relationship between school/ university programs and citizenship. Relevance of education in contemporary society.

CI 2001. Survey of Art Activities. (2 cr; A-F only)
Introduction to pictorial expression, design, and the function of art in the social environment. Attention to classic and contemporary books in all genres; research in children’s reading interests and response to literature.

CI 5111. Introduction to Elementary School Teaching. (3 cr; A-F only. Prereq–Foundations of ed major or elem ed init lic)
Curriculum organization, instruction, management, assessment, professional decision making.

CI 5181. Clinical Experience in Elementary School Teaching. (4 8 cr; S-N only. Prereq–Foundations of education and elem ed init lic only)
Students spend full days in the elementary classroom gradually assuming responsibility for teaching class. Students prepare a portfolio based on criteria given. One seminar per week.

CI 5183. Applying Instructional Methods in the Elementary Classroom. (1-2 cr [max 8 cr]; A-F only. Prereq–Foundations of ed major or elem ed init licens only)
Supervised experience in elementary classrooms.

CI 5251. Social and Philosophical Foundations of Early Childhood Education. (3 cr; A-F only. Prereq–[MEd student in ECE or ECSE] or #)
Surveys imagery, history, philosophy, and psychology of early childhood education. Analyzing/interpreting trends in early education, including diversity, special needs, legislation, public policy, and educationally appropriate practice.

CI 5252. Facilitating Social and Physical Learning in Early Childhood Education. (3 cr. Prereq–Student in early childhood ed or early childhood special ed)
Current theoretical/empirical literature and developmental knowledge as basis for planning, implementing, and evaluating social/physical growth/development of young children. For students obtaining ECE/ECSE licensure.

CI 5253. Facilitating Cognitive and Creative Learning in Early Childhood Education. (3 cr; A-F only. Prereq–MEd student in early childhood ed or early childhood special ed)
Overview of cognitive, creative, and language characteristics of children ages 9-8 years and of how teachers can plan curriculum to facilitate children’s development in these areas.

CI 5281. Student Teaching in Early Childhood Education. (3-6 cr; S-N only. Prereq–MEd student in early childhood ed or early childhood special ed)
Application of theory/research relating to teaching preschool children. For individuals obtaining ECE lisence.

CI 5401. Literature for the Elementary School. (3 cr; A-F only. Prereq–Children’s lit course or #)

CI 5415. Literacy Development in the Primary Grades. (3 cr; A-F only. Prereq–Elem teaching exper or #)
Theory/practice of integrated teaching of reading, literature, writing, and language in primary classroom settings. Uses national/state language arts standards and assessment protocols to examine primary literacy curricula.

CI 5504. Elementary School Science: Materials and Resources. (3 cr. Prereq–Elem/ES middle school teaching exper or #)
Examination of the teacher’s role in inquiry teaching; the current science curriculum; and resources for teaching science in the elementary school.

CI 5731. Social Studies for the In-Service Elementary/Middle School Teacher. (3 cr; A-F only. Prereq–Elem/ES middle school teaching exper or #)
Content and organization of elementary and middle school social studies programs. Understanding and improving the teaching-learning situation through the analysis of current trends and issues in the field. Integration with other subject areas where appropriate.

CI 5821. Teaching Mathematics in the Elementary School. (2 cr; A-F only. Prereq–Elem Ed init lic only)
Principles of learning pertinent to the modern program of mathematics in elementary grades. Objectives, content, philosophy, instructional materials, and methods of instruction and evaluation.

Dance (Dnce)
Department of Theatre Arts and Dance

College of Liberal Arts

Dnce 1001. Modern Dance Technique 1. (1 cr)
Expressive body movement: alignment, proprioceptiveness, body mechanics, weight, momentum, line, and intent.

Dnce 1002. Modern Dance Technique 2. (1 cr. Prereq–1001, A)
Continuation of 1001. Expressive body movement: alignment, proprioceptiveness, body mechanics, weight, momentum, line, and intent.

Dnce 1010. Modern Dance Technique 3. (2 cr [max 4 cr]. Prereq–A)
Continuation of 1010. Placement, power from pelvic center, rotation/turnout, muscular tonality, articulation of joints, clarity of emotional intent, physical stretch, strength, and stamina.

Dnce 1020. Modern Dance Technique 4. (2 cr [max 4 cr]. Prereq–1010, A)
Placement, power from pelvic center, rotation/turnout, muscular tonality, articulation of joints, clarity of emotional intent, physical stretch, strength, and stamina.

Dnce 1101. Ballet Technique 1. (3 cr)
Principles, basic technique, and vocabulary of ballet; barre, center, and allegro.

Dnce 1102. Ballet Technique 2. (1 cr. Prereq–1101, A)
Continuation of 1101. Principles, basic technique, and vocabulary of ballet; barre, center, and allegro.

Dnce 1110. Ballet Technique 3. (2 cr [max 4 cr]. Prereq–A)
Continuation of ballet training. Correct placement, line and historical development; barre, center, and allegro.

For definitions of course numbers, symbols, and abbreviations, see page 300.
Course Descriptions


Dnce 1201. Jazz Technique 1. (1 cr) Jazz dance technique and its origins, Warm-up, center-floor work, and across-the-floor combinations.


Dnce 1210. Jazz Technique 3. (1 cr [max 2 cr]. Prereq–A) Jazz technique: body isolations, placement, and musicality.


Dnce 1301. Tap Technique 1. (1 cr) Learning fundamental terms, basic rhythm structures, stock steps, and standard time steps.

Dnce 1302. Tap Technique 2. (1 cr Prereq–1301 or #) Fundamental terms, basic rhythms and syncopation, stock steps, and standard time steps; clarity of sound and rhythm.

Dnce 1311. International Folk Dance 1. (1 cr) Basic folk steps including the schottische, polka, waltz, and grapevine; technical emphasis on footwork and partnering.

Dnce 1312. International Folk Dance 2. (1 cr. Prereq–1311, A) Continuation of 1311. Basic folk steps including the schottische, polka, waltz, and grapevine; technical emphasis on footwork and partnering.

Dnce 1313. African Based Movement. (1 cr) Varied movement of African diaspora, primarily but not limited to West African region and continent of Africa. Traditional movement. Movement inspired by Africa, the Caribbean, and African diaspora at large. In-class movement participation, one movement midterm, one two-page paper.

Dnce 1315. Flamenco. (1 cr) Basic terminology and movement styles of Spanish Flamenco dance technique. Focuses on arm movements and footwork. Basic choreography. One class period is devoted to viewing videos of traditional Flamenco dance.


Dnce 1323. Swing Dance. (1 cr) Traditional swing dances popular in the United States from 1930s through early 1960s. Each week new movements/figures are taught and previous dances reviewed. Students are expected to change partners.

Dnce 1325. Latin Dance. (1 cr) Basic vocabulary, lead/follow techniques of most popular Latin social dance styles. Salsa, Cha-Cha, Rumba, Merengue. First half of class focuses on basic footwork/partnering; second half focuses on rhythm and musical styling.


Dnce 1362. Dance for Musical Theatre. (2 cr; A-F only) Movement based lab. Dance skills in musical theatre performance. Focuses on various styles/disciplines of dance throughout its culturally diverse heritage. Character development necessary to execution of various dance styles.

Dnce 1401. Introduction to Dance. (3 cr) Modern dance, ballet, and world dance, primarily in the 20th century. Dance forms, choreographers, and dance issues through lecture, discussion, and viewing of live and taped performances.

Dnce 1402. Dance History. (3 cr. Prereq–1401) “Way of knowing” in dance history by reading the works of critics, historians, and philosophers who address questions concerning the nature of dance.

Dnce 1500. Topics in Dance. (1-3 cr [max 10 cr]) Topics specified in Class Schedule.

Dnce 1601. Dance Improvisation. (1 cr; A-F only. Prereq– Concurrent registration in a modern dance technique course, A) Individual ways of moving linked to fundamental elements of dance: time, space, and energy. Metered time, musical phrasing. Movement speed, shape, and quality. Creative process, individual movement vocabulary, structural devices in dance.

Dnce 1626. Music for Dance. (3 cr. Prereq–A) Elements of music theory, form, analysis, and history necessary for the potential dancer, choreographer, and musician to better understand each art.

Dnce 3010. Modern Dance Technique 5. (2 cr [max 4 cr. Prereq–A; audit registration not permitted]) Application of principles of space, time, energy. Alignment, power from pelvic center, rotation/turnout, muscular tonality, joint articulation, clarity of intent, stretch, strength, stamina.


Dnce 3210. Jazz Technique 5. (1 cr [max 2 cr. Prereq–A; audit registration not permitted]) Continuation of jazz technique. Rhythm structures, longer phrases, greater physical speed, attack/control.

Dnce 3220. Jazz Technique 6. (1 cr [max 2 cr. Prereq–Ballet major, A; audit registration not permitted]) Continuation of 3210. Jazz technique. Rhythm structures, longer phrases, greater physical speed, attack/control.

Dnce 3301. Tap Technique 3. (1 cr. Prereq–1302 or #) Tap techniques and creative development through improvisational studies.

Dnce 3302. Tap Technique 4. (1 cr Prereq–3301 or #) Tap techniques and rhythm structures.

Dnce 3337. Body Mind Centering. (2 cr) Improvisational movement explorations, hands-on re-patterning work. Direct experience of the way mind (desire, attention, intention) is expressed through various body systems. Students use imagery, touch, and anatomical information to access a range of inner sensations and movement experiences. Emphasizes each individual’s unique experience of the body.

Dnce 3401. Dance History 1. (3 cr) History/theory of dance in varied forms/aspects. From origins of dance as movement form, through early Renaissance. First half of year-long survey.


Dnce 3433. Articulate Body. (3 cr. Prereq–Dance major or minor, A) Lectures and movement sessions in biodynamic considerations for optimal dance performance and metabolic demands of dance.

Dnce 3487. Ethnic Dance Traditions in American Society. (3 cr) Traditional dances as preserved and transformed by Native Americans, African-Americans, Latinos, Asian-Americans, and European-Americans in the United States. Interpretation of roles of dance in these cultures.

Dnce 3487W. Ethnic Dance Traditions in American Society. (3 cr) Traditional dances as preserved and transformed by Native Americans, African-Americans, Latinos, Asian-Americans, and European-Americans in the United States. Interpretation of roles of dance in these cultures.

Dnce 3488. Dance as Cultural Practice. (3 cr) Study of dance as art, ritual, social activity, and entertainment in selected cultures of Asia, Africa, Eastern Europe, the Middle East, and the Americas.

Dnce 3488W. Dance as Cultural Practice. (3 cr) Study of dance as art, ritual, social activity, and entertainment in selected cultures of Asia, Africa, Eastern Europe, the Middle East, and the Americas.

Dnce 3500. Topics in Dance. (1-3 cr [max 10 cr]) Topics specified in Class Schedule.

Dnce 3601. Dance Composition 1. (3 cr. Prereq–1020, 1601, concurrent regis in a modern dance technique course, A) Movement, vocabulary in relation to theme, space, time, energy, and body parts; solo, duet, and trio forms.
Dance 3602. Dance Composition 2. (3 cr; Prereq–3601, ∆, concurrent regis in a modern dance technique course) Movement vocabulary in relation to theme, space, time, energy, and body parts. Solo, duo, and trio forms.

Dance 3621. Dance Production I. (2 cr; A-F only. Prereq–Dance major, ∆) Technical/administrative aspects of dance production. Lighting, costumes, sound, marketing, stage management, fundraising, publicity. Emphasizes practical project management and personal management skills.

Dance 3622. Dance Production II. (2 cr; A-F only. Prereq–3621, dance major, ∆) Continuation of 3621. Students produce the spring Student Dance Concert.

Dance 3700. Performance. (1 cr [max 4 cr]. Prereq–Concurrent regis in a technique class, audition, ∆) Creation or reconstruction of a dance theatre work under the direction of a guest artist or faculty member. Work is performed at the end of the rehearsal period.


Dance 4443. Philosophy and Aesthetics. (3 cr. Prereq–3402, ∆) Major developments in Western philosophical thought on dance and dance theory from its beginnings to the present.

Dance 4454W. (Re)Writing the Dancing Body. (3 cr) Modes of verbal and non-verbal expression to capture the meaning created by primarily non-verbal artistic forms. Chapters from text and issues are discussed/debated in class. Writing during every class period.

Dance 4601. Dance Composition 3. (3 cr; Prereq–3602, concurrent regis in a modern dance technique course, ∆) Continuation of 4600. Movement vocabulary through improvisation, analysis of form and structure, experimentation with tone and performance persona. Effects of lights/costumes/text/props/music; development of larger ensemble works.


Dance 4901. Senior Seminar. (2 cr; S-N only. Prereq–St, [Dance or Th major]; offered fall semester only) Development of senior project, alone or in groups, under guidance of faculty members.


Dance 5500. Topics in Dance. (1-3 cr [max 10 cr] Topics specified in Class Schedule.


Dance 5700. Performance. (1 cr [max 4 cr]. Prereq–Technique course, ∆) Technique, improvisation, choreography, music, design, and technical production as they relate to dance performance.

Dance 5858. Teaching Dance. (4 cr. Prereq–1020, ∆, #) Methods, principles, and techniques of teaching dance.


Danish (Dan)

Department of German, Scandinavian, and Dutch College of Liberal Arts

Dan 1001. Beginning Danish. (5 cr) Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subjects (shopping, directions, family, food, housing, etc.).

Dan 1002. Beginning Danish. (5 cr Prereq–1001) Continues the presentation of all four language modalities (listening, reading, speaking, writing). Emphasis on proficiency. Topics include free-time activities, careers, and the Danish culture.

Dan 1003. Intermediate Danish. (5 cr. Prereq–1002) Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Centralized work on grammar and vocabulary is combined with authentic readings and essay assignments.

Dan 1004. Intermediate Danish. (5 cr. Prereq–1003) Emphasis on developing intermediate to high proficiency in listening, reading, speaking, and writing. Centralized work on grammar and vocabulary is supported by work with authentic readings and essay assignments.

Dan 3011. Advanced Danish. (3 cr. Prereq–1004 or 4004) To help students achieve advanced proficiency in Danish. Discussion of fiction, film, journalistic and professional prose is combined by grammar and vocabulary building exercises and a systematic review of oral and written modes of communication.

Dan 3012. Advanced Danish. (3 cr. Prereq–1004 or 4004) Discussion of novels, short stories, plays, articles complementing structural, stylistic, vocabulary building exercises.

Dan 4001. Beginning Danish. (2 cr §3001. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Dan 1001; see Dan 1001 for course description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or otherwise exempt.

Dan 4002. Beginning Danish. (2 cr §3002. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Dan 1002; see Dan 1002 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or otherwise exempt.

Dan 4003. Intermediate Danish. (2 cr. §1003. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Dan 1003; see Dan 1003 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or otherwise exempt.

Dan 4004. Intermediate Danish. (2 cr. §1004. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Dan 1004; see Dan 1004 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or otherwise exempt.

Dental Hygiene (DH)

Department of Preventive Sciences

School of Dentistry

DH 1191. Dental Hygiene Care Process. (6 cr; A-F only. Prereq–DH student) Assessment principles related to medical and oral health status, dental hygiene clinical procedures, and development of instrumentation and hypertension screening skills.

DH 1203. Dental Specialties. (2 cr; S-N only. Prereq–DH student) Various dental specialties and the dental hygienist’s role in services provided.

DH 2111. Dental Anatomy. (2 cr; A-F only. Prereq–DH student) All deciduous and permanent teeth, including tooth form, function, and relationship to oral health. Calculation, eruption, and exfoliation patterns. Ideal static occlusion, dental terminology, and tooth annotation systems. Lab includes identification/annotation of teeth and restoration, in wax, of portions of a typodont tooth.

DH 2121. The Dental Hygiene Care Process Clinical Application I. (5 cr; A-F only. Prereq–DH student) Dental hygiene care process, assessment principles related to medical and oral health status, dental hygiene clinical procedures, and development of instrumentation skills.

DH 2122. Head and Neck Anatomy. (1 cr; A-F only. Prereq–DH student) Anatomical structures of head/neck as they relate to practice of dental hygiene.

DH 2191. Independent Study. (0-6 cr [max 6 cr]. Prereq–DH student) Individually arranged study, instruction, or research with faculty to meet student needs/interests.


DH 2211. Oral Histology and Embryology. (2 cr; A-F only. Prereq–DH student) Study of the application of pathophysiology to specific organ systems and more extensively the mouth. Emphasizes identification/management of selected oral conditions.

DH 2212. Dental Hygienist-Patient Relationship. (1 cr; A-F only. Prereq–DH student) Use of clinical research and evidence-based clinical decision making when communicating scientifically based clinical therapy and treatment modalities. Promotion of active participation by patient in clinical decision making.


For definitions of course numbers, symbols, and abbreviations, see page 300.
### DH 2222. Dental Hygiene Care Process Clinical Application II. (1-4 cr; A-F only. Prereq–DH student)
- Principles of diet/nutrition applied to dental hygiene patient care. Skills in dental dietary counseling.

### DH 3111. Biomatериалы для Дентальной Хигиены. (3 cr; A-F only. Prereq–DH student)
- Principles of diet/nutrition applied to dental hygiene patient care. Skills in dental dietary counseling.

### DH 3112. General and Oral Pathology. (2 cr; A-F only. Prereq–DH student)

### DH 3113. The Dental Hygiene Care Process Clinical Application III. (1-4 cr; A-F only. Prereq–DH student)
- Dental hygiene treatment planning, alternative instruments and advanced skills related to implementation of dental hygiene care. Clinical experience in dental hygiene patient care and dental dietary counseling.

### DH 3126. Oral and Maxillofacial Radiology Clinic I. (0 cr; A-F only. Prereq–DH student)
- Exposing patient radiographs, interpretation, panoramic/extraoral technique, quality assurance procedures.

### DH 3131. Periodontology I. Lecture. (1 cr; A-F only. Prereq–DH student)

### DH 3132. Applied Nutrition in Dental Hygiene Care. (1 cr; A-F only. Prereq–DH student)
- Principles of diet/nutrition applied to dental hygiene patient care. Skills in dietary counseling.

### DH 3133. Pharmacology. (2 cr; A-F only. Prereq–DH student)
- Principles of pharmacology, physical/chemical properties of drugs, modes of administration, therapeutic/adverse effects, drug actions/interactions.

### DH 3134. Dental Hygiene Care for Special Needs Patients I. (2 cr; A-F only. Prereq–DH student)
- Knowledge, skills, and attitudes required for providing dental hygiene care for pediatric/orthodontic and geriatric patients and individuals with disabilities.

### DH 3135. Oral and Maxillofacial Radiology: Theory, Principles, and Radiographic Analysis. (2 cr; A-F only. Prereq–DH student)

### DH 3191. Independent Study. (0-6 cr [max 6 cr]. Prereq–DH student)
- Individually arranged study, instruction, or research with faculty to meet student needs/interests.

### DH 3203. Dental Hygiene Care for Special Needs Patients I. (2 cr; A-F only. Prereq–DH student)
- Knowledge, skills, and attitudes required for providing dental hygiene care for pediatric/orthodontic and geriatric patients and individuals with disabilities.

### DH 3221. Local Anesthesia and Pain Management. (2 cr; A-F only. Prereq–DH student)

### DH 3224W. The Dental Hygiene Care Process Clinical Application IV. (1-4 cr; A-F only. Prereq–DH student)

### DH 3225. Extramural Clinical Dental Hygiene. (0-6 cr; A-F only. Prereq–DH student)
- Students participate in educational/clinical experiences with diverse patient populations in community outreach clinics.

### DH 3226. Extramural Clinical Dental Hygiene. (1-4 cr; A-F only. Prereq–DH student)
- Students participate in educational/clinical experiences with migrant worker health care program.

### DH 3227. Oral and Maxillofacial Radiology Clinic II. (0 cr; A-F only. Prereq–DH student)
- Exposing patient radiographs, interpretation, panoramic/extraoral technique, and quality assurance procedures.

### DH 3231. Research Methods in Dental Hygiene. (3 cr; A-F only)
- Develop skills in scientific method and analyzing research findings; emphasis on types of research, problem selection, hypothesis writing, research planning and design, data collection and measuring techniques, analysis and interpretation of data, and writing the research proposal.

### DH 3231W. Research Methods in Dental Hygiene. (3 cr; A-F only. Prereq–DH student)
- Develop skills in scientific method and analyzing research findings; emphasis on types of research, problem selection, hypothesis writing, research planning and design, data collection and measuring techniques, analysis and interpretation of data, and writing the research proposal.

### DH 3235. Dental Hygiene Care for Special Needs Patients II. (2 cr; A-F only. Prereq–DH student)
- Knowledge, skills, and attitudes required for providing dental hygiene care for pediatric/orthodontic and geriatric patients and individuals with disabilities.

### DH 4191. Independent Study. (1 cr; A-F only. Prereq–DH student)
- Small-group, cooperative learning setting integrates dental and dental hygiene students. Apply patient care skills taught in other courses. Communication skills, patient management, teamwork, collegiality, and practice philosophy.

### DH 4191. Independent Study. (0-6 cr [max 6 cr]. Prereq–DH student)
- Individually arranged study, instruction, or research with faculty to meet student needs/interests.

### DH 4226. Dental Hygiene Care Process Clinical Application VI. (1-5 cr; A-F only. Prereq–DH student)
- Adapt dental hygiene care process to meet preventive/treatment needs of traditional and special needs patients. Analyze patient preventive/treatment need through case presentation. Community service, cultural diversity, family violence issues. New products, techniques, research.

### DH 4227. Advanced Dental Hygiene Clinical Experience I. (1-6 cr. Prereq–DH student)
- Development of skills in sonic/ultrasonic scaling/assessment, treatment planning, documentation, implementation/evaluation of dental hygiene care.

### DH 4228. Advanced Dental Hygiene Clinical Experience II. (0-6 cr. Prereq–DH student)
- Development of skills in sonic/ultrasonic scaling/assessment, treatment planning, documentation, implementation/evaluation of dental hygiene care.

### DH 4229. Oral and Maxillofacial Radiology Clinic IV. (3 cr; A-F only. Prereq–DH student)
- Exposing patient radiographs, interpretation, panoramic/extraoral technique, quality assurance procedures.

### DH 4231. Periodontology III. Lecture. (1 cr; A-F only. Prereq–DH student)
- Clinical experience in dental hygiene patient care. Skills in dental dietary counseling.

### DH 4232. Community Outreach. (1 cr; S-N only. Prereq–DH student)
- Dental hygiene education in various community settings.

### DH 4233. Legislative, Social, Economic, and Practice Factors in Oral Health. (2 cr; A-F only. Prereq–DH student)
- Current status/trends in dentistry in relation to health care promotion, regulation, and delivery and political/legislative process.

### DH 4238. Patient Management IV. (1 cr; A-F only. Prereq–DH student)
- Small-group, cooperative learning setting integrates dental and dental hygiene students. Apply patient care skills taught in other courses. Communication skills, patient management, teamwork, collegiality, practice philosophy.

### DH 4241. Extramural Clinical Dental Hygiene. (0-6 cr [max 6 cr]. A-F only. Prereq–DH student)
- Students participate in educational/clinical experiences with diverse patient populations in community outreach clinics.

### DH 4242. Extramural Clinical Dental Hygiene. (0-6 cr. Prereq–DH student)
- Students participate in educational/clinical experiences with Jamaica Mission Program.

### DH 4250. Dental Hygiene Community Outreach Elective. (0-8 cr [max 8 cr]. S-N only. Prereq–DH student)
- Individually arranged study, instruction, or research with faculty to meet student needs/interests.

### DH 4292. Curriculum Development in Dental Hygiene. (3 cr; A-F only)

### DH 4293. Course Development in Dental Hygiene. (0-6 cr; A-F only)
- Principles/practice of course development, testing, and evaluation.
DH 4294. Directed Research. (0-4 cr)
Critical literature review and/or individual empirical research project leading to a written report, and/or intensive observation/participation in the clinical research center.

DH 4294W. Directed Research. (0-4 cr)
Critical literature review and/or individual empirical research project leading to a written report, and/or intensive observation/participation in the clinical research center.

DH 4295. Instructional Methods in Dental Hygiene Education. (0-4 cr; A-F only)
Application of principles of learning, learning styles, teaching styles, and instructional methods. Microteaching of selected instructional skills.

DH 4296. Issues in Dental Hygiene. (0-3 cr; A-F only)

DH 4297. Dental Hygiene Education: Supervised Teaching. (1-4 cr; A-F only)
Observation/participation in supervised teaching experience in dental hygiene education.

DH 4298W. Dental Hygiene Process of Care: Clinical Application. (1-4 cr; A-F only)
Clinical care of patients.

DH 4299. Selected Topics in Patient Education. (0-4 cr)
Program development and clinical application; student assesses, plans, implements, and evaluates a patient education program in a clinical setting.

DH 4300. Field/Practice Externship. (0-4 cr)
Clinical and/or community service externship completed on or off campus with diverse population.

Design, Housing, and Apparel (DHA)

Department of Design, Housing, and Apparel

College of Human Ecology

DHA 1101W. Introduction to Design Thinking. (4 cr; A-F only)
Theories/processes that underpin design thinking. Interactions between humans and their natural, social, and designed environments where purposeful design helps determine quality of interaction. Design professions.

DHA 1170. Special Topics in Design, Housing, and Apparel. (1-4 cr [max 16 cr]; A-F only)
In-depth investigation of specific topic, announced in advance.

DHA 1171. Freshman Seminar in Design, Housing, and Apparel. (1-3 cr; A-F only. Prereq- FR)
Topic in design, housing, or apparel. Small-group seminar.

DHA 1201. Clothing Design, Merchandising, and the Consumer. (3 cr; A-F only)
An orientation to the apparel business covering the multiple steps in the process of creating and merchandising apparel, and the ethical positions reflected in decision making at each step.

DHA 1221. Clothing Assembly Fundamentals. (3 cr; A-F only. Prereq- Pre-clothing design major or #)
Methods/applications of clothing assembly, from micro to macro perspective.

DHA 1311. Foundations: Drawing and Design in Two and Three Dimensions. (4 cr; A-F only. Prereq- DHA major or premajor)
Design elements/principles in context of observational drawing. Integrative approach to two-dimensional design, three-dimensional design, and drawing. Broad conceptual framework for design exploration. Emphasizes perceptual aspects of visual forms.

DHA 1312. Foundations: Color and Design in Two and Three Dimensions. (4 cr; A-F only. Prereq- DHA major or premajor)
Color theory and its application in two- and three-dimensional design. Emphasizes effective use of color by studying traditional color systems, perception, and interaction. Lectures, demonstrations, extensive studio work, critiques.

DHA 1315. Foundations: The Graphic Studio. (4 cr; A-F only. Prereq- DHA major or premajor or #)

DHA 1601. Interior Design Studio I. (4 cr; A-F only. Prereq- DHA pre-major)
Theories used to solve interior design problems related to human behavior. Design process. Communication skills that are required for interior design profession.

DHA 1602. Interior Design Studio II. (4 cr; A-F only. Prereq- [DHA pre-major], 1601 with grade of at least C-)
Introduction to interior design programming as method for understanding behaviors/requirements of humans in spaces. Use of color in three-dimensional environments. Developing communication skills. Problem-solving.

DHA 2111. Illustration for Clothing Design. (2 cr; A-F only. Prereq- Pass portfolio review or #)
Development of illustration skills specific to garments/textiles. Exploration of various traditional media/CAD applications. Critique/analysis of visual communication of clothing design concepts.

DHA 2123. Textile Analysis. (4 cr; A-F only. Prereq- DHA major or pre-major or #)
Physical, chemical, and biological characteristics of fibers, yarns, textile structures, and finishes. Their effect on performance/apparentness of textile products, including clothing, interior, and industrial textiles.

DHA 2214. Softline Analysis. (3 cr; A-F only. Prereq- 1201, 2213)
Physical characteristics of softline products related to function for target market. Class experiences based on methods of analysis, including visual inspection, quality, construction, costing, and fit/sizing.

DHA 2221. Clothing Design Studio I. (4 cr; A-F only. Prereq- 1201, [1221 or pass sewing proficiency exam], 1211, 1212, DHA [major or pre-major])
Theories/methods in designing clothing for various user groups. Relation of 2-dimensional pattern shape to a 3-dimensional body. Introduction to flat-pattern draping.

DHA 2222. Clothing Design Studio II. (4 cr; A-F only. Prereq- 2221, DHA major, pass portfolio review)
Design process in developing clothing for a specific user group. Advanced principles/methods of developing patterns for the body, including advanced flat pattern, draping, fitting, Computer-aided design tools for illustration, patternmaking.

DHA 2311. Drawing and Illustration. (3 cr; A-F only. Prereq- 1311, 1312, [DHA major or premajor])
Advanced drawing skills. Illustration concepts/ techniques. Illustration assignments for concepts, stories, and ideas.

DHA 2324. Apparel Information Applications I: Digital Composition for Design. (3 cr; A-F only. Prereq- [DHA major or pre-major], 1311, 1312, 1315)
Composition of visual elements in electronic realm. Use of computer to design for traditional media, digital environments.

DHA 2345. Typographic Design. (2 cr; A-F only. Prereq- DHA major, pass portfolio review)
History of typographic forms, principles of composition, expressive potential of type. Design process from problem-solving through exploration, experimentation, selection, critique, and refinement. Readings, research, exercises, design production.

DHA 2351. Graphic Design I: Text and Image. (3 cr; A-F only. Prereq- 2345, DHA major, pass portfolio review)
Composition of visual information using grid structures to integrate text/image. Informational/expressive aspects of graphic design, hierarchical relationships of text elements. Methods of text layout that enhance communication.

DHA 2385W. Design and Factors of Human Perception. (4 cr; A-F only. Prereq- DHA major, pass portfolio review)
Introduction to human-factor variables of design. Color perception, type legibility, and other aspects of the human interface with designed objects. Students develop design prototypes. Methods to evaluate effectiveness of designed projects.

DHA 2401. Introduction to Housing. (3 cr; A-F only)
Physical, social, economic, psychological aspects of housing design/construction. Housing as process/product in context of the individual, the family, the community. Effects of federal, state, local governmental policies, economic trends.

DHA 2402. Residential Technology. (3 cr; A-F only)
Survey of technological systems in housing. Emphasizes consumption/conservation of natural resources and energy sources. Human factor considerations in kitchen design.

DHA 2463. Housing and Community Development. (3 cr; A-F only)
Meaning/significance of neighborhood/community, residential neighborhood change, impact of housing on neighborhood conditions. Gentrification, displacement, racial segregation, suburbanization, community-based revitalization.

DHA 2603. Interior Design Studio III. (4 cr; A-F only. Prereq- 1602 with grade of at least C-, pass portfolio review, DHA major)
Expanding presentation skills, visual communication of design process. Design of interior environment as influenced by neighborhood, adjacent structures, regional context, diverse cultures.

DHA 2604. Interior Design Studio IV. (4 cr; A-F only. Prereq- 2603, 2612, 2621) with grade of at least C-, DHA major)
Relationship between exterior/interior design as it pertains to building construction. Methods/materials, principles of structure, building systems, construction details. Interface of electrical, HVAC, and plumbing systems in buildings.

DHA 2612. Interior Materials and Specifications. (4 cr; A-F only. Prereq- Pass portfolio review, DHA major)
Environmental issues, from global to interior spaces. Effect of building codes/legislation, social awareness. Functional/aesthetic relation of materials/ resources to interior design.

DHA 2613. Lighting Design and Life Safety Issues. (4 cr; A-F only. Prereq- [DHA major, pass portfolio review] or #)
Lighting design technology, aesthetics, and human factors for interior spaces. Codes, standards, and legislation related to built environment.

DHA 2621. Computer Aided Design: Interior Design. (4 cr; A-F only. Prereq- [DHA major, pass portfolio review] or #)
Application of two- and three-dimensional computer drawing in design/visualization of interior space. AutoCAD software used on Windows-based system.

DHA 3217. Fashion Trends and Visual Analysis. (3 cr; A-F only. Prereq- 2213)
Relation of fashion trends to visual analysis of apparel. Application to designREET.

DHA 3223. Clothing Design Studio III. (4 cr; A-F only. Prereq- DHA major, pass portfolio review)
Study tailored/non-tailored clothing structures. Experiment with various materials/structures using traditional/innovative methods. Basic principles of manipulating materials/structures applied to series of garments.

DHA 3224. Clothing Design Studio IV. (4 cr; A-F only. Prereq- 3223, DHA major)
Principles/theory of functional clothing design. Conduct/apply research in designing clothing for situations requiring thermal or impact protection, accommodation for mobility, or facilitation for bodily function.
Course Descriptions

DHA 3242. Retail Buying. (3 cr; A-F only. §4242. Prereq–1201, Math 1031, [jr or sr])
Principles and strategies of merchandise inventory control, merchandise selection.

DHA 3243. Visual Merchandising. (3 cr; A-F only. Prereq–1101, 1201)
Study of the retail store environment to address the physical and psychological effects that initiate and motivate consumer behavior. Aspects of merchandise display include creativity, department layout, fixtureting, lighting, cross merchandising, visual resources, signing, and maintenance.

DHA 3245. Multichannel Retailing. (3 cr; A-F only.)
Prereq–1201)
Overview of retailing. Emphasizes issues related to multichannel options available to consumers. Features both store based (e.g., specialty store, department store) and non-store based (e.g., Internet, catalog) issues of retailing.

DHA 3312. Color and Form in Surface Design. (3 cr; A-F only. Prereq–DHA major, pass portfolio review)
Use of color/form representation in two-dimensional surface applications. Historical use of color and of spatial representation in visual communication.

DHA 3352. Graphic Design II: Identity and Symbols. (3 cr; A-F only. Prereq–2351, DHA minor)
Representation of abstract ideas through symbols. Development of visual identity systems.

DHA 3353. Graphic Design III: Packaging and Display. (3 cr; A-F only. Prereq–3352 or 3353, DHA major)
Application of graphic design principles to three-dimensional projects. Principles of three-dimensional design/space applied to labeling/packaging.

DHA 3605. Interior Design Studio V. (4 cr; A-F only. Prereq–[2402, 2604, 2613] with grade of at least C, DHA major)
Advanced interior design problems dealing with small to medium scale spaces. Emphasizes specialization within interior design.

DHA 3606. Interior Design Studio VI. (4 cr; A-F only. Prereq–3605 with grade of at least C, DHA major)
Interior design problems dealing with medium-scale spaces. Focuses on medium office design.

DHA 3614. Interior Design Ethics and Professional Practice. (4 cr; A-F only. Prereq–3604, pass portfolio review)
The business of interior design, professional ethics, and responsible design are emphasized. Students investigate their responsibility to their business, clients, colleagues, and the community at large. Professional portfolios and credentials will be discussed.

DHA 4001. Design Minor Seminar. (1 cr; A-F only. Prereq–Design minor)
Students share ideas/conclusions with one another, create a summary statement (e.g., document, multimedia display, designed object) of a significant learning insight.

DHA 4121. History of Costume. (4 cr; A-F only. Prereq.–jr or sr or grad student)
Survey of clothing/appearances in Western cultures, from 16th century to present. Role of gender, race, and class with respect to change in dress within historical moments and social contexts. Research approaches/methods in study/interpretation of dress.

DHA 4131. History of Visual Communication. (4 cr; A-F only. Prereq–Intro history or art history course)
Historical analysis of visual communication with an emphasis on the technological, cultural, and aesthetic influences on graphic design. Examination of how historical events are communicated and perceived through graphic presentation and imagery.

DHA 4161. History of Interiors and Furnishings: Ancient to 1750. (4 cr; A-F only. Prereq–Arch history course or #)
Study of European and American interiors and furnishings including furniture, textiles, and decorative objects.

DHA 4162. History of Interiors and Furnishings: 1750 to Present. (4 cr; A-F only. Prereq–4161 or #)
Study of European and American interiors and furnishings including furniture, textiles, and decorative objects.

DHA 4196. Internship in DHA. (1-4 cr; S-N only. Prereq–Completion of at least one-half of professional sequence, plan submitted and approved in advance by adviser and internship supervisor, written permission of faculty supervisor. #)
Supervised work experience relating activity in business, industry, or government to the student’s area of study. Integrative paper or project may be required.

DHA 4212W. Dress, Society, and Culture. (3 cr; A-F only. Prereq.–[1101, 1111, if jr or grad student] or #)
Contemporary dress from diverse cultures within/outside USA analyzed using social science concepts. Dress as a nonverbal communication system.

DHA 4217. International Developments in Textiles and Apparel. (4 cr; A-F only. Prereq.–[1201, A&Pc 1112, Jr or sr or grad student] or #)
Production, labor, trade, and marketing in textile, apparel, and related goods in global setting.

DHA 4225. Clothing Design Studio V. (4 cr; A-F only. Prereq–3224, DHA major)
Market research, planning/implementation. Designing for specific audience, market, user group. Applying market research to design line of clothing. Research of promotional methods for design project.

DHA 4226. Clothing Design Studio VI. (4 cr; A-F only. Prereq–4225, DHA major)
Synthesis of clothing design work based on concepts examined in previous studio classes. Principles of mass production applied to design projects completed in 4225. Implementation of public promotion of a clothing line. Individual strategies for promoting career goals. Exhibition/portfolio presentations.

DHA 4241. Retail Promotion. (3 cr; A-F only. Prereq–1201, [Mktg 3001 or equiv., Jr or sr])
Integration of communication/consumer behavior theories with elements of retail promotion. Advertising, sales promotions, point-of-purchase communications, personal selling.

DHA 4247. Advanced Buying and Sourcing. (3 cr; A-F only. Prereq–3242)
Technology application for buying/sourcing. Applications include six-month dollar merchandise planning, associated market purchasing and sales promotions planning, inventory management, costing, markdowns, timing, and sourcing.

DHA 4330. Surface Fabric Design Workshop. (4 cr; max cr 6; A-F only)
Studio experience in the development and production of surface design. Screen printing, batik, resist dying, shibori, cyanotypes, and dye transfers are included.

DHA 4334. Computer Applications II: Design for the Digital Environment. (3 cr; A-F only. Prereq–[2354 or 2365], DHA major or DHA grad student or #, pass portfolio review)
Design of visual communication for electronic media display, designed object) of a significant learning insight.

DHA 4340. Woven, Knit, and Non-Woven Fiber Design Workshop. (4 cr; max 8 cr; A-F only)
Studio experience in the development and production of woven, knit, and non-woven fiber projects. Explore several design methods and complete a major project using one of the structure techniques.

DHA 4345. Advanced Typographic Design. (4 cr; A-F only. Prereq–3352, DHA major or DHA grad student or #)
Expressive visual communication of words. Fundamental legibility of ‘the invisible art,’ overt expression through type. Students complete extended typographic project.

DHA 4351. Design Process: Photography. (3 cr; A-F only. Prereq.–DHA major or DHA grad student or #, pass portfolio review)
Relationship between photography, design projects. Composition, developing of film, printing.

DHA 4352. Design Process: Bookmaking. (3 cr; A-F only. Prereq–DHA major or DHA grad student or #, pass portfolio review)

DHA 4354. Graphic Design IV: Integrative Campaign. (4 cr; A-F only. Prereq–[3353, DHA major]
Multi-faceted graphic communication campaign projects involving substantial investigation and concept development. Project supports a unified concept for an identified client and is aimed at a specific market or interest group.

DHA 4355. Graphic Design Portfolio. (2 cr; S-N only. Prereq–[4354 or 4365], DHA major)
Preparation of professional portfolio. Discussion of professional issues.

DHA 4365W. Graphic Design Senior Seminar. (4 cr; A-F only. Prereq–4354, DHA major)
Students complete senior research/design project involving social, conceptual, and technical aspects. Capstone course.

DHA 4384. Interactive Media. (3 cr; A-F only. Prereq.–[4343 or 4345], DHA major or DHA grad student or #, pass portfolio review)
Design of interactive multimedia projects. Experience developing interactive presentations and electronic publishing. Software includes hypermedia, scripting, video/sound editing, animation, digital output.

DHA 4461. Housing Development and Management. (3 cr; A-F only. Prereq–[2401, 2402, 2463] or #)
Housing development process/financing. Management of multifamily housing. Emphasizes housing for low-income families and special populations (e.g., elderly residents).

DHA 4465. Housing in a Global Perspective. (3 cr; A-F only. Prereq.–[2401, 2463] or #)
Housing, its relationship to global patterns of social/economic development examined in comparative framework. Emphasizes housing low income populations in rapidly growing cities of developing countries.

DHA 4482. Our Home, Our Environment. (3 cr; A-F only. Prereq.–2402 or #)
Relationship between people, their homes, and the natural environment. Human health effects and environmental impacts of design, construction, renovation, retrofitting, and landscaping. Consumer options for lighting, water use, and other environmental impacts of design, construction, renovation.

DHA 4525. Housing in a Global Perspective. (3 cr; A-F only. Prereq.–[2401, 2463] or #)
Housing, its relationship to global patterns of social/economic development examined in comparative framework. Emphasizes housing low income populations in rapidly growing cities of developing countries.

DHA 4607. Interior Design Studio VII. (4 cr; A-F only. Prereq–3606 with grade of at least C, 3614, DHA major)
Advanced interior design problems dealing with large scale spaces. Historical precedent, adaptive use, renovation.

DHA 4608. Interior Design Thesis. (4 cr; A-F only. Prereq.–4615W with grade of at least C, DHA major)
Comprehensive independent interior design project developed from student-conducted research/program developed in 4615W.

DHA 4608W. Interior Design Thesis. (6 cr; A-F only. Prereq.–4607 with grade of at least C, DHA major)
Current issues that affect interior design research/practice. Methods for programming/solutions. Comprehensive independent interior design project developed from student-conducted research.

DHA 4615W. Interior Design Research. (2 cr; A-F only. Prereq–4607 with grade of at least C, DHA major)
Research methods for programming interior design solutions. Developing a comprehensive program. Issues that affect interior design research/practices.

DHA 5111. History of Decorative Arts. (4 cr; A-F only. Prereq.–General art history survey course or #)
In depth study of textiles, ceramics, metal, and glass from selected historical periods. Focus on the Goldstein Gallery collections.
Course Descriptions

DHA 5170. Special Topics in Design, Housing, and Apparel. (1-4 cr [max 8 cr]; A-F only. Prereq–Depends on topic; check with dept for description about solving the particular problem). In-depth investigation of a single specific topic, announced in advance.

DHA 5193. Directed Study in Design, Housing, and Apparel. (1-4 cr; A-F only. Prereq–#) Independent study in design, housing, and apparel under tutorial guidance.

DHA 5196. Field Study: National/International. (1-10 cr [max 10 cr]; A-F only. Prereq–Faculty-directed field study in a national or international setting.

DHA 5215. Product Development: Softlines. (4 cr; A-F only §4215. Prereq–2213 or clothing design major or grad student or #) Consumer behavior theories/concepts as related to apparel. Application to understanding/developing retail promotional strategies: advertising/promotion.

DHA 5381. Digital Illustration. (3 cr; A-F only. Prereq–4334, [DHA major or grad student]) Integration of design with computer applications. Use of raster/vector-based programs for illustration.

DHA 5382. Digital Sound and Video. (3 cr; A-F only. Prereq–4334, [DHA major or grad student]) Design solutions involving time-based media. Emphasizes sound/video. Electronic publishing via Internet.

DHA 5383. Animation Design. (3 cr; A-F only. Prereq–4334, [DHA major or grad student]) Introduction to three-dimensional modeling.

DHA 5385. Internet-Based Media. (3 cr; A-F only. Prereq–4334, [DHA major or grad student]) Designing interactive presentations (using various operating systems) for Internet/Web. Electronic publishing. Development of internet-based communication.

DHA 5388. Design Planning, Analysis, and Evaluation. (3 cr; A-F only. Prereq–[4354, DHA major or grad student]) Preliminary research, including theoretical, applied, and legal aspects. Planning/developmental models. Design prototyping, testing, and analysis.

DHA 539W. Theory of Electronic Design. (3 cr; A-F only. Prereq–DHA major, sr) Alternate yrs) offered independent study in design. Theories, methodologies, histories of electronic design, its impact on visual communications. Digital artifacts, processes, paradigms.

DHA 5463. Housing Policy. (3 cr; A-F only. Prereq–2401, 2463 or #) Explore the institutional and environmental settings that make up housing policy in the United States. Examine competing ideas about solving the nation’s housing problems through public intervention in the market. Federal and local public sector responses to housing problems will be evaluated.

DHA 5467W. Housing and the Social Environment. (4 cr; A-F only. Prereq–2401 or #) Housing choices in context of social environment. Emphasizes special needs of elderly, disabled, minorities, large families, female-headed households, and low-income households. Students conduct a post-occupancy evaluation of housing.

DHA 5469. Understanding Housing: Assessment and Analysis. (3 cr; A-F only. Prereq–[2401, 2463] or #) How to formulate housing research problems and analyze/present information about housing characteristics/conditions. Students develop housing-related research/grant proposals, use/design cartographic/graphic information about housing, and give a presentation on a research project.

DHA 5471. Housing Studies Certificate Seminar. (2 cr; A-F only. Prereq–Admitted to Housing Studies Certificate Program) Integrative seminar and “capstone” to Certificate program. Students prepare an individual career plan that focuses on application of housing studies to community/workplace.

DHA 5481. Housing for the Elderly and Special Populations. (3 cr; A-F only. Prereq–2401 or #) Introduction to the changing housing needs of individuals and families across the life span. Particular emphasis will be on housing needs of children, older adults, and persons with disabilities.

DHA 5484. Rural Housing Issues. (3 cr; A-F only. Prereq–2401, 2463 or #) Housing issues in nonmetropolitan areas. The housing concerns of specific rural populations (e.g., low income, elderly persons, American Indians, migrant workers) are identified and comparisons with urban housing issues are made.

Design Institute (Desl)

College of Architecture and Landscape Architecture

Desl 4001. Design Minor Seminar. (3 cr; A-F only. Prereq–Design minor) Students share ideas/conclusions with one another and create a summary statement (e.g., document, multimedia display, designed object) of a significant learning insight.


Desl 5100. Design Institute Directed Study. (1-3 cr [max 6 cr]; A-F only) Guided independent study in design.

Dutch (Dtch)

Department of German, Scandinavian, and Dutch College of Liberal Arts

Dtch 1001. Beginning Dutch. (5 cr) Emphasis on working toward novice-intermediate low proficiency in all four language modalities (listening, reading, speaking, writing). Topics include everyday subject matters (shopping, directions, family, food, housing, etc.).

Dtch 1002. Beginning Dutch. (5 cr; Prereq–1001) Continues the presentation of all four language modalities (listening, reading, speaking, writing), with a proficiency emphasis. Topics include free-time activities, careers, and Dutch culture.

Dtch 1003. Intermediate Dutch. (5 cr; Prereq–1002) Emphasis on intermediate proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is combined with authentic readings and essay assignments.

Dtch 1004. Intermediate Dutch. (5 cr; Prereq–1003) Emphasis on developing intermediate high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments.

Dtch 3011. Conversation and Composition. (3 cr. Prereq–1004 or 4004 or #) Further practice and refinement of spoken and written Dutch beyond the intermediate level: development of compositional skills and vocabulary based on the reading, viewing, and discussion of relevant Dutch and Flemish media reports. Grammar review and development of critical corrective grammatical skills.

Dtch 3012. Conversation and Composition. (3 cr. Prereq–3011) Further practice and refinement of spoken and written Dutch beyond the intermediate level: development of compositional skills and vocabulary based on the reading, viewing, and discussion of relevant Dutch and Flemish media reports. Grammar review and development of critical corrective grammatical skills.

Dtch 3310. Studies in Dutch Literature. (3 cr [max 9 cr]. Prereq–Reading knowledge of Dutch) In-depth study of authors or topics from various periods in Dutch literature (e.g., 19th-century Dutch novels, colonial novels, literature of Golden Age). All primary literature is read in the original.

Dtch 3510. Topics in Dutch Culture. (3 cr [max 9 cr]. Prereq–No knowledge of Dutch required) A single topic or theme of Dutch or Flemish culture explored in depth. Past topics have included Dutch national character, origin of the Batavian myth, and images of Dutchness.

Dtch 3610. Dutch Literature in Translation. (3 cr [max 9 cr]. Prereq–No knowledge of Dutch required) In-depth study of authors or topics from various periods in Dutch literature. All primary/secondary literature is read in English translation.

Dtch 3993. Directed Studies. (1-5 cr [max 12 cr]. Prereq–#) Guided reading in or study of Dutch literature, culture, or advanced language skills.

Dtch 4001. Beginning Dutch. (2 cr §1001. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Dtch 1001; see Dtch 1001 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or otherwise exempt.

Dtch 4002. Beginning Dutch. (2 cr §1002. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Dtch 1002; see Dtch 1002 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or otherwise exempt.

Dtch 4003. Intermediate Dutch. (2 cr §1003. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Dtch 1003; see Dtch 1003 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or otherwise exempt.

Dtch 4004. Intermediate Dutch. (2 cr §1004. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Dtch 1004; see Dtch 1004 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or otherwise exempt.

Dtch 5490. Topics in Dutch Literature. (3 cr [max 9 cr]) Topic may focus on a specific author, group of authors, genre, period, or subject matter. Topics specified in Class Schedule.

Dtch 5993. Directed Studies. (1-4 cr [max 12 cr]. Prereq–#) Guided individual reading or study.
Course Descriptions

East Asian Studies (EAS)
Institute of International Studies
College of Liberal Arts

EAS 1462. Introduction to East Asia in Modern Times: 1600-2000. (4 cr)

EAS 3013. Introduction to East Art. (3 cr; Jr-Th 3013)
A selective examination of representative works of art produced in China, Korea, and Japan from the neolithic era to modern times. Nearly every major type of object and all major styles are represented.

EAS 3211. Geography of East Asia. (3 cr; §Geog 3211; §Geog 5211)
Physical and human geography of Japan, mainland China and Taiwan, North and South Korea; population pressure, economic and urban development, and international relations.

EAS 3461. Introduction to East Asia: The Imperial Age. (4 cr; §Hist 3461)
Comparative survey of early history of China, Japan, Korea, and Vietnam; early Chinese thought; diffusion of Confucianism, Buddhism, and other values throughout East Asia; political and social history of region to 1600.

EAS 3462. Introduction to East Asia in Modern Times 1200-2000. (3-4 cr; §Hist 3462)

EAS 3464. China in the Song, Yuan, and Ming Dynasties. (3 cr; §Hist 3464)
China during the Song (976-1279), Yuan (1279-1368) and Ming (1368-1644) dynasties, political institutions and social structures. Attention to primary sources and how historians ask and answer questions about the past.

EAS 3465W. China in the Ming and Qing Dynasties. (3 cr; §Hist 3465)
The political and social history of China from about 1600 until the end of the Qing dynasty in 1911. Topics include ethnicity, daily life, legal structures, city, life, and peasants.

EAS 3467W. State and Revolution in Modern China. (3 cr; §Hist 3467)
Modern China’s political evolution including the Taiping Rebellion, Republican Revolution, rise of Nationalist and Communist parties, Maoist era, reform under Deng Xiaoping, and the emergence of democracy in Taiwan.

EAS 3468. Social Change in Modern China. (3 cr; §Hist 3468)
Opium War and opening of Treaty Ports in 19th century; missionary activity and cultural influence; changes in education system; women’s movement; early industrialization; socialism and collectivization after 1949; industrialization of Taiwan; PRC’s entry into the world trading system.

EAS 3468W. Social Change in Modern China. (3 cr; §Hist 3468)
Opium War and opening of Treaty Ports in 19th century; missionary activity and cultural influence; changes in education system; women’s movement; early industrialization; socialism and collectivization after 1949; industrialization of Taiwan; PRC’s entry into the world trading system.

EAS 3471. 20th-Century Japan: 1910s to 1990s. (3 cr; §Hist 3471)
World War I, Japan’s emergence as an industrial society, world power in the 1920s. Rise of militarism, World War II in the Pacific. Political reform, economic resurgence, cultural change in postwar era.

EAS 3472. Early Modern Japan: 1850s to 1990s. (3 cr; §Hist 3472)

EAS 3473. Family, School, and Work in Modern Japan. (3 cr; §Hist 3473)
Impact of economic, social, and cultural change on males and females in the family, the education system, the employment system from the 17th through 20th centuries.

EAS 3474. The Rise of Modern Japan: 1850s to 1990s. (3 cr; §-N only §Hist 3474)
The Meiji Revolution from Commodore Perry to the eve of World War I; origins of constitutional monarchy, industrial economy, Western influences, and modern cultural change.

EAS 3661. Contemporary Chinese Society: Mainland China, Hong Kong, Taiwan. (3 cr; A-F only §Hist 3661. Prereq–§Hist 1001 or courses on East Asia or experience in East Asia or #)
Major aspects of Chinese society. Forms of social relations and values, religion, childhood, family, community, education, work, business organization, politics, social classes, crime and deviance, police, popular culture, status of women and minorities, social protest movements, and international relations.

EAS 3671. Contemporary Chinese Society: Mainland China, Hong Kong, Taiwan. (3 cr; A-F only §Geog 3671, §Soc 3671. Prereq–§Geog 101 or §Soc 101 or equiv in other social sciences or humanities)
Chinese society and culture, with focus on post-1949 mainland China, Taiwan, and Hong Kong. Chinese family, dating and marriage, rural and urban societies, population, work and occupation, socioeconomic development and inequalities, and impacts of post-1978 reforms.

EAS 3940. Topics in Asian History. [1-4 cr (max 16 cr.)]
Prereq–§ Hist or # or #)
Selected topics in Asian history not covered in regular courses.

EAS 4467. Politics and Market in Contemporary Japan. (3-4 cr; §Pol 4467. Prereq–§Pol 1051 or 3051 or non-pol sci grad or #)
Study how Japan combined rapid economic development and relative social stability in the postwar period and the problems Japan faces in today’s “globalized” world. Focus on major economic and political actors including bureaucracy, business and labor, and the role of political and economic institutions. Assess strengths and weakness of the Japanese-style of capitalism.

EAS 4473. Chinese Politics. (3-4 cr; §Pol 4473)
Focuses on fundamental conflicts in Chinese society; the democracy movement, human rights, class divisions, gender struggles, environmental issues, and capitalist vs. socialist development strategies. Secondary topics include Chinese foreign relations and domestic and foreign political issues in Taiwan.

EAS 4662. Comparative East Asian Development: A New Model for Growth and Prosperity. (3-4 cr; §Soc 4662. Prereq–§Hist 3661 or §Soc 3661 or related Asian or sociology courses or East Asian experience or #)
Social and cultural changes, the rapid growth and relative equity of Japan, South Korea, Taiwan, Hong Kong, Singapore and more recently, China. Relation of these examples to more general theories of development.

EAS 5940. Topics in Asian History. [1-4 cr (max 16 cr.)]
Prereq–Grad or #)
Selected topics such as cultural, economic, intellectual, political, and social history.

Ecology, Evolution, and Behavior (EEB)
Department of Ecology, Evolution, and Behavior
College of Biological Sciences

EEB 1019. Our Changing Planet. (4 cr; §Ast 1019, §Geo 1019)
Interdisciplinary study of Earth as a set of interacting, evolving systems—solid earth, oceans, atmosphere, and biosphere—and its relationship with the sun and stars. Cycling of matter and energy in Earth systems, their equilibria, and the effect of natural and human perturbations.

EEB 3001. Ecology and Society. (3 cr; A-F only §Biol 3007. Prereq–§ Hist or #)
Recommended; biological sciences students may not apply cr toward major)

EEB 3361. Visions of Nature: The Natural World and Political Thought. (4 cr; §SCL 3361. Prereq–Soph or jr or sr; biological sciences students may not apply these credits toward the major)
Theories about the organization of nature, human nature, and their significance for the development of ethics, religion, political and economic philosophy, civics, and environmentalism in Western and other civilizations.

EEB 3963. Modeling Nature and the Nature of Modeling. (3 cr; §Soc 3963. Prereq–Math 1281, Math 1282 or equiv or #)
Hands-on modeling experiences in context of biological applications. Reviews calculus concepts. Students carry out modeling steps, from developing the model, to analytical analysis, to developing computer code, to running the models.

EEB 4014W. Ecology of Vegetation. (3 cr; Prereq–§Hist 3407, Biol 3007)

EEB 4016W. Ecological Biogeography. (3 cr; Prereq–§Biol 3047)
Biotic regions of world in general and North America in detail. Ecological principles of distribution, interpretations of regional/temporal patterns in distribution of vegetation, taxonomic groups of plants/animals. Includes one weekend field trip.

EEB 4129. Mammalogy. (4 cr; A-F only §FW 4129. Prereq–Biol 1001 or Biol 2012)
Evolutionary and biogeographic history of mammals. Recognize, identify, and study natural history of mammals at the ordinal level, North American mammals at familial level, and mammals north of Mexico at generic level. Minnesota mammals at specific level. Includes lab.

EEB 4134. Introduction to Ornithology. (4 cr; Prereq–Biol 1001 or Biol 2012)
Structure, evolution, classification, distribution, migration, ecology, habitats, identification of birds. Lecture, lab, weekly field walks. One weekend field trip.

EEB 4176. Ichthyology. (3 cr; §FW 4176. Prereq–Biol 1001 or Biol 2012)
Fish biology, adaptations to different environments and modes of living, and environmental relationships. Lab emphasizes anatomy and identification of Minnesota fishes.

EEB 4329. Primates Ecology and Social Behavior. (3 cr; A-F only §Prereq–Biol 1001 or Biol 1009 or §Biol 2411 or #)
Course Descriptions

EEB 4601. Limnology. (3 cr; A-F only. §Geo 4601. Prereq-Chem 1022)
Description and analysis of lakes and other aquatic environments beginning with lake origins and progressing through lake physics, chemistry, and biology. Interrelationships among these topics and effects of human activities.

EEB 4605. Limnology Laboratory. (1 cr; A-F only. §Geo 4605. Prereq-4610. or #)
Field and lab methods used to obtain information on environmental conditions in aquatic environments and the measure the abundance of aquatic organisms, especially plankton. Field/lab instruments, sampling devices, microscopy, water chemistry, data analysis.

EEB 4607. Plankton Ecology. (4 cr; A-F only. Prereq-4601 or #Geo 4601)
Planktonic bacteria, algae, and animals in lakes, reservoirs, and oceans with special attention to processes that cause variations of abundance.

EEB 4609W. Ecosystem Ecology. (3 cr; Prereq-Biol 3407) Regulation of energy and elements cycling through ecosystems; dependence of the cycles on kinds and numbers of species within ecosystems; effects of human-induced global changes on the functioning of ecosystems.

EEB 4611. Biogeochemical Processes. (3 cr. Prereq-Chem 2301, [Biol 2302 or MicB 2302 or VPB 2302 or Biol or 3301 or MicB 3301], Phys 1201 or #)
Application of biochemistry, ecology, chemistry, and physics to environmental issues. Current issues in biogeochemistry. Impact of humans on biogeochemical processes in soils, lakes, oceans, estuaries, forests, urban/managed ecosystems, and extreme environments (e.g., early Earth, deep sea vents, thermal springs).

EEB 4631. Global Ecology. (4 cr; A-F only. §Geo 4631. Prereq-College level ecology course, 2 semesters of chemistry, high-school physics] or #)
Interactions between biosphere/lithosphere, atmosphere/oceans throughout Earth history. How climate is influenced on long time scales (evolution of photosynthesis) and on decadal time scales (forest clearance). Earth as an interacting ecosystem. Evaluating future effects of accumulating greenhouse gases.

EEB 4793W. Directed Studies: Writing Intensive. (1-7 cr. max 7 cr; S-N only. Prereq- #)
Individual study on selected topics or problems. Emphasizes selected readings, use of scientific literature.

EEB 4794. Directed Research. (1-7 cr. max 7 cr; S-N only. Prereq-
Laboratory or field investigation of selected areas of research.

EEB 5008. Forest Response to Quaternary Climate Change. (2 cr; A-F only. Prereq- Biol 4307, EEB 4631 or Geo 4631; § EEB 5009)
Forest responses to past climate change at the population, community, and ecosystem level. Response to natural and human disturbance, range shifts and invasions. Limitations to the speed of response to rapid climate change.

EEB 5009. Quaternary Vegetation History and Climate. (3 cr. Prereq-[4631 or Geo 4631, Biol 4307] or #)

EEB 5011. Pollen Morphology. (2 cr. Prereq- Biol 3007, Pbio 4321 or Pbio 4321 or Pbio 4511 or #)
Morphology of seeds, fruits, and other macroscopic remains likely to occur in Quaternary deposits, survey of fossils of major plant families, lab techniques.

EEB 5013. Quaternary Plant Macrofossils. (2 cr. Prereq- Pbio 4321 or Pbio 4511 or #)
Morphology and nomenclature of pollen grains and spores of major plant families, lab techniques.

EEB 5033. Population and Quantitative Genetics. (4 cr. Prereq- 4003 or GCD 2022. Intro statistics or #)
Genetic basis of variation in populations and of evolutionary change. Allelic frequency dynamics: emphasizes natural selection, additive genetic variance, and heritability. Current topics related to consequences of artificial selection and of inbreeding.

EEB 5051. Analysis of Populations. (3 cr. Prereq-Intro biology, intro statistics or #)
Factors involved in the regulation, growth, and general dynamics of populations. Data needed to describe population growth, population models, and regulatory mechanisms.

Classical and modern mathematical theories of population growth, interspecific interactions, ecosystem dynamics and functioning, with emphasis on underlying assumptions and on effects of added biological reality on robustness of predictions, stability, interspecific interactions, ecosystem structure and functioning.

EEB 5122W. Plant Interactions with Animals and Microbes. (3 cr; A-F only. Prereq- Biol 2012 or 3002, 3407 or 3409. or #)
Ecological and environmental implications of mutualistic and antagonistic interactions between plants, animals and microbes at organismal, population, and community levels.


EEB 5221. Molecular and Genomic Evolution. (3 cr; A-F only. Prereq-([Biol 4003 or QCD 3022] grad student) or #)
Molecular basis of evolutionary change. Current studies of selection and neutral evolutionary processes at molecular level. Evolution from gene to genome level: protein structure and function, multigene families, organelle genomes, genome organization. Lectures, discussions of current literature, and workshops where students practice analyses.

EEB 5321. Evolution of Social Behavior. (3 cr; A-F only. Prereq- Biol 3411 or #)
Introduction to theories and concepts relating to behavior evolution, mating systems, and cooperative behavior in animals.

EEB 5322. Evolution and Animal Cognition. (3 cr; Prereq- Biol 3411 or Psy 3061 or #)
Animal cognitive abilities. Learning, perception, memory, navigation, and communication from evolutionary/comparative perspective. Cognitive abilities as adaptations that solve specific environmental problems. Empirical methods for assessing cognitive abilities. Emphasizes parsimonious interpretations of data. Controversial topics such as animal intelligence, animal language and whether non-human animals have a “theory of mind.”

EEB 5323. Neural and Endocrine Mechanisms Underlying Vertebrate Behavior. (2 cr; A-F only. Prereq- Biol 3411 or Biol 3101 or Hsc 3101 or Phil 3101 or #)
Selected aspects of the physiological basis of vertebrate behavior with emphasis on neural and endocrine integration and the effects of evolutionary pressures on it. Hormones and sex behavior, sensory perception, neuroethology of communication.

EEB 5327. Behavioral Ecology. (3 cr; Prereq- 3411 or #)
Evolutionary principles applied to aggressive competition, mate choice, cooperation, and parental investment. Optimization models used to examine foraging strategies, predator/prey interactions, and territoriality. Evolution of sexual selection, dispersal. Evolutionary game theory.

EEB 5361. Visions of Nature: The Natural World and Political Thought. (4 cr. Prereq- Advanced studies in history, philosophy, or biology)
Theories about the organization of nature, human nature, and their significance for the development of ethics, religion, political and economic philosophy, civics, and environmentalism in Western and other civilizations. Graduate credit requires paper on conceptual topic on human ecology.

EEB 5371. Principles of Systematics. (3 cr. Prereq- #)
Theoretical and practical procedures of biological systematics. Phylogeny reconstruction, including computer-assisted analyses, morphological and molecular approaches, species concepts and speciation, comparative methods, classification, historical biogeography, nomenclature, and use and value of museums.

EEB 5609. Ecosystem Ecology. (3 cr. Prereq- Biol 3407 or Biol 5407)
Regulation of energy and elements cycling through ecosystems. Dependence of cycles on kinds/numbers of species within ecosystems. Effects of human-induced global changes on functioning of ecosystems.

For definitions of course numbers, symbols, and abbreviations, see page 300.

ECON 101H. Honors Course: Principles of Microeconomics. (4 cr. §1101, §1104, §486C 1101, §1102 or equiv; Math 1271) Hands-on modeling experiences in context of biological applications. Reviews calculus concepts. Students carry out modeling steps, from developing the model, to analytical analysis, to developing computer code, to running the models.


ECON 1910W. Freshman Seminar. (3 cr; A-F only. Prereq- Fr or no more than 36 cr) Topics specified in Class Schedule.

ECON 1903. Freshman Seminar. (3 cr; A-F only) Topics specified in Class Schedule.

ECON 1904. Freshman Seminar. (3 cr; A-F only) Topics specified in Class Schedule.

ECON 1905. Freshman Seminar. (3 cr; A-F only. Prereq-Fr or no more than 36 cr) Topics specified in Class Schedule.

ECON 1910W. Freshman Seminar. (3 cr; A-F only. Prereq-Fr or no more than 36 cr) Topics specified in Class Schedule.

ECON 3012. Survey of Economic Ideas. (3 cr. §4022. Prereq- 1101-1102 or equiv not for econ majors) A historical and analytical treatment of how important economic ideas developed over time, and their relationship to prevailing economic conditions and political/cultural economic ideas from Adam Smith to the present.

ECON 3031. American Economic Problems. (3 cr. §4031. Prereq- 1101, 1102 or equiv; Econ majors consult first with CLA adviser) American economic problems/relationships. Relevance of specific economic principles to economic problems in the United States.

ECON 3033. Current Economic Issues. (3 cr. §4033. Prereq- 1101, 1102 or equiv; not for econ majors) Current controversies over economic policies used to deal with some economic problems. Students focus in part on a specific issue of their choice. Different economic issues are discussed each time the course is offered (every three years).

ECON 3041. Prospective World Economy. (3 cr. §4041. Prereq- 1101, 1102 or equiv or econ major with CLA adviser approval) What economic future holds. What can be done about global issues. How to improve economic prospects of countries.

ECON 3101. Intermediate Microeconomics. (4 cr. §3101, §3105, §3111. Prereq- 1101-1102 or equiv; Math 1271 or equiv) Behavior of households, firms, and industries under competitive and monopolistic conditions; factors influencing production, price, and other decisions of the firm; applications of the theory. Economic efficiency and distribution of well-being.

ECON 3101H. Honors Course: Intermediate Microeconomics. (4 cr. §3101, §3105. Prereq- 1101-1102 or equiv; Math 1271 or equiv) Behavior of households, firms, and industries under competitive and monopolistic conditions; factors influencing production, price, and other decisions of the firm; applications of the theory. Economic efficiency and distribution of well-being.

ECON 3102. Intermediate Microeconomics. (4 cr. §3112. Prereq- 3101 or equiv) Determinants of national income, employment, and price level; effects of monetary and fiscal policies; emphasis on a general equilibrium approach. Applications of the theory, especially to current macroeconomic policy issues.

ECON 3102H. Honors Course: Intermediate Microeconomics. (4 cr. §3101, §3102 or equiv) Determinants of national income, employment, and price level; effects of monetary and fiscal policies; emphasis on a general equilibrium approach. Applications of economic efficiency and distribution of well-being.


ECON 3105. Managerial Economics. (4 cr. §3101, §3102 or equiv) Role of labor in economy; labor as factor of production, population, and labor force; economics of labor markets; labor market institutions; theories of wages and employment; unions and collective bargaining; public policy.


ECON 3611. Environmental Economics. (3 cr. Prereq- 1101, 1102, or equiv; not open to Econ majors) Dependence of the economic environment; alternative visions of the future and issues on which actual outcome will depend, particular attention to global warming; future generations and sustainability; economic incentives for environmental protection and degradation; economic aspects of environmental policies.

ECON 3701. Money and Banking. (3 cr. §4721, §4729. Prereq- 1101, 1102 or equiv; not open to Econ majors) Historical development, present characteristics, and economic role of financial institutions. Commercial banking, the Federal Reserve System, and monetary policy.


ECON 3951. Major Project Seminar. (2 cr. Prereq- 3101, 3102 or equiv; EngC 3027) Students produce a significant piece of written work in economics. Project should demonstrate critical thinking, collection and analysis of data, problem solving, effective interpretation of findings. Students should attain understanding and proficiency in modes of inquiry in economics.

ECON 3960. Topics in Economics. (3 cr. §4821, §5821. Prereq- 1101, 1102 or equiv [others may be stated in Class Schedule]) Topics specified in Class Schedule.

ECON 3991. Independent Study. (1-3 cr; A-F only. Prereq- 1101, 1102 or #) Students confirm topic of study with faculty supervisor or with director of undergraduate studies before beginning (otherwise no credit).

ECON 3993. Directed Studies. (1-3 cr; A-F only. Prereq- 1101, 1102 or equiv. #) Guided individual reading or study in areas not available in regular course offerings. Private agents’ response to government actions. Optimal policies. Application primarily to U.S. federal government.

ECON 4021. Economics, Ethics, and Economic Philosophy. (3 cr. Prereq- 1101, 1102 or equiv) Discussion of American economic problems and relationships. Relevance of simple economic principles to economic problems in the United States.

ECON 4022. Survey of Economic Ideas. (3 cr. §3021. Prereq- 3101, 3102 or equiv) Historical and analytical view of how important economic ideas developed and their relationship to prevailing economic conditions and politics. Economic ideas from Adam Smith to the present.


ECON 4033. Current Economic Issues. (3 cr. §4033. Prereq- 3101, 3102 or equiv) Current controversies over economic policies used to deal with some economic problems. Students focus in part on a specific issue. Different economic issues are discussed every time the course is offered (every three years).

ECON 4041. The Prospective World Economy. (3 cr. §3904. Prereq- 3101 or equiv) Considers what the economic future holds, what can be done now to deal with global issues, and how to improve economic prospects of countries.

ECON 4100W. Undergraduate Writing in Economics. (1 cr. [max 1 cr]; A-F only. Prereq- 3101, 3403 or concurrent enrollment in economics honors course) Research essay.
Econ 4109H. Honors Course: Game Theory and Applications. (4 cr. Prereq–3101, 3102 or equiv; Math 2271-2272 or equiv). Games: normal form and extensive form; wars of attrition; games of timing; bargaining applications in industrial organization, macroeconomics, and international economics.

Econ 4113. Introduction to Mathematical Economics. (4 cr. Prereq–3101, 3102 or equiv; Math 1271-1272 or 2243 or equiv) Development of selected models of economic behavior in mathematical terms. Topics selected to illustrate the advantages of a mathematical formulation.

Econ 4161. Microeconomic Analysis. (2 cr. Prereq–3101 or 5151 or equiv), Math 2243, Math 2263. #) Theories of consumer demand, producer supply, and market equilibrium. General equilibrium and welfare. May include topics such as externalities, economics of information/uncertainty, and game theory. Seven-week course. Meets with 8001.

Econ 4162. Microeconomic Analysis. (2 cr. Prereq–4161, #) Theories of consumer demand, producer supply, and market equilibrium. General equilibrium and welfare. May include topics such as externalities, economics of information/uncertainty, and game theory. Seven-week course. Meets with 8002.

Econ 4163. Microeconomic Analysis. (2 cr. Prereq–4162, #) Theories of consumer demand, producer supply, and market equilibrium. General equilibrium and welfare. May include topics such as externalities, economics of information/uncertainty, and game theory. Seven-week course. Meets with 8003.

Econ 4164. Microeconomic Analysis. (2 cr. Prereq–4163, #) Theories of consumer demand, producer supply, and market equilibrium. General equilibrium and welfare. May include topics such as externalities, economics of information/uncertainty, and game theory. Seven-week course. Meets with 8004.


Econ 4171. History of Economic Thought. (3 cr. Prereq–3101, 3102 or equiv) Primarily a critical reading course. Topics include Smith, Ricardo, Malthus, and Marx; neoclassicists, Keynes, the mercantilist and physiocratic doctrines; and modern theory.


Econ 4261. Introduction to Econometrics. (4 cr; A-F only. Prereq–3101 or equiv, [Math 1271, Math 1272] or equiv) Review of basic linear regression model, its variants. Time series/simultaneous equation models. Material may include panel data, censored/truncated regressions, discrete choice models.

Econ 4262. Introduction to Econometrics. (4 cr; A-F only. Prereq–4261) Review of basic linear regression model, its variants. Time series/simultaneous equation models. Material may include panel data, censored/truncated regressions, discrete choice models.


Econ 4307. Comparative Economic Systems. (3 cr. §4307. Prereq–1101, 1102 or equiv; not open to Econ majors) Functions of various market systems, market economy vs. centrally planned economy. Post socialist transitions in Eastern Europe, Russia, and China and reforms undertaken. Initial conditions and strategies for reforms; results of reforms in terms of key economic indicators.


Econ 4315. The Japanese Economy. (3 cr. Prereq–1101, 1102 or equiv) Economic development following contact with western civilization. Issues covered include trade, development and growth, population growth, capital formation, economic growth, agricultural and industrial policies; role of the government in the economy, and current issues of interest.


Econ 4337. Comparative Economic Systems. (3 cr. §4307. Prereq–3101, 3102 or equiv) Functions of various market systems, market economy versus centrally planned economy. Comparison of different economic systems; post socialist transitions in Eastern Europe, Russia, and China. Initial conditions and strategies for reforms; results of reforms in terms of key economic indicators.


Econ 4421W. Economic Integration of the Americas. (3 cr. Prereq–3101, 3102 or equiv or #) Analysis of economic relationships among countries in the Western Hemisphere. Modeling the impact of NAFTA and similar regional trade prospects. Proposals for further integration. Comparison with European integration.


Econ 4432V. International Finance. (3 cr. §4401. Prereq–3101, 3102 or equiv, §4431 or §4439 or equiv recommended) Balance of payments; international financial markets; exchange rate determination; international monetary system; international investment and capital flows; financial management of the multinational firm; open economy macroeconomic policy.

Econ 4531. Labor Economics. (3 cr. §5301, Prereq–3101, 3102 or equiv) Economic analysis of labor markets and their operations; population and labor force; labor market institutions; wage and employment theories; unions and collective bargaining; public policy.


Course Descriptions

Econ 4721. Money and Banking. (3 cr. §3701, §4729. Prereq—3101 or equiv)
Theory of money demand and money supply; financial intermediation and banking; banking practices and regulation, role of the Federal Reserve system, Monetary policy.

Econ 4721H. Honors Course: Money and Banking. (4 cr. §3701, §4721. Prereq—3101 or equiv, Math 1271)
Theories of money demand and money supply; financial intermediation, banking, nonbank financial institutions, banking practices, bank regulation, international banking, role of Federal Reserve system. Monetary policy.

Econ 4731. Macroeconomic Policy. (3 cr. §4739. Prereq—3101, 3102 or equiv)
Monetary vs. fiscal policy debate in the context of the underlying macroeconomic theory controversy. Comparison of Keynesian, Monetarist, and Classical theories; rational expectations; policy ineffectiveness; time inconsistency; rules vs. discretion; budget deficits; unemployment and inflation.

Econ 4731H. Honors Course: Macroeconomic Policy. (4 cr. §4731, §4731IV Prereq—[3101, 3102] or equiv, Math 1271)

Econ 4741. Quantitative Analysis of the Macroeconomy. (3 cr. §4749. Prereq—[3101, 3102] or equiv, [Stat 3011 or equiv])

Econ 4741H. Honors: Quantitative Analysis of the Macroeconomy. (4 cr. §4741, §4741IV Prereq—[3101, 3102] or equiv, [Stat 3011 or equiv])

Econ 4751. Financial Economics. (3 cr. §4759. Prereq—3101 or equiv, Math 1271 or equiv, 1 sem statistics)

Econ 4751H. Honors Course: Financial Economics. (4 cr. §4751. Prereq—3101, 3102 or equiv, Math 1271 or equiv, [Stat 3011 or equiv])
Efficiency of financial markets. Theoretical concepts, empirical evidence.

Econ 4821. Public Economics. (3 cr. Prereq—§3801; 3101, 3102 or equiv)
Competing views on the proper role of government in the economy. Effects of tax and spending policies, taking into account private agents' response to government actions and the ways government officials may use their powers; optimal policies. Applications primarily to U.S. government.

Econ 4831. Cost-Benefit Analysis. (3 cr. §4611V, §4611H, §4619, §4831W. Prereq—3101 or equiv)
Principles for evaluation of benefits/costs of public projects or programs. Issues connected with definition/measurement of benefits/costs. Rate of return, rate of discount. Market imperfections, risk, and uncertainty. Case studies of applications of theory.

Econ 4960. Topics in Economics. (3 cr. [max 6 cr.]. Prereq—3101, 3102 or equiv; Math 1271 [may change based on topic])
Topics specified in Class Schedule.

Econ 4991. Independent Study. (1-4 cr. Prereq—Honors student, topic approved by [faculty supervisor or dir of undergrad studies])
Honors thesis.

Econ 4993. Directed Study. (1-4 cr. Prereq—For honors thesis)
Guided individual reading or study in areas not available in regular course offerings.

Econ 5109H. Game Theory for Engineers. (4 cr; A-F only. §8101, §8102, §8103, §8104, §8117, §8118, §8119)
Prereq—[[Math 2283, Math 2373, Math 2374, Math 3283] or Math 4606], M.S./Ph.D. student in [engineer or comp sci or info tech or operations mgmt] or #; not for econ [undergrads or PhD students]

Econ 5151. Elements of Economic Analysis: Firm and Household. (2 cr. Prereq—3101, 3102, or equiv; Math 1271 or equiv; Math 2243 or equiv; grad or #)
Decision-making by households and firms under conditions of perfect competition, monopoly, and monopolistic competition.

Econ 5152. Elements of Economic Analysis: Income and Employment. (2 cr. Prereq—3101, 3102 or equiv; Math 1271 or equiv; Math 2243 or equiv; grad or #)
Determinants of national income, employment, and price level; aggregate consumption, investment, and asset holding.

Econ 5312. Growth, Technology, and Development. (3 cr. §4739. Prereq—3101, 3102 or equiv or #)

Econ 5890. Economics of the Health-Care System. (3 cr; A-F only. Prereq—[3101, 3102] or equiv)
Overview of developmental and individual differences of children and adolescents in educational contexts; emphasis on a dynamic systems perspective; developmental transitions in childhood and adolescence; interactions between the student, environment, and task; and accommodations and adaptations for students in special education.

Education and Human Development (EdHD)

College of Education and Human Development

EdHD 1905W. Freshman Seminar, Cultural Diversity and Writing Intensive. (1-3 cr [max 6 cr.]. Prereq—Fr)
Interdisciplinary seminar. Topics specified in Class Schedule.

EdHD 1908W. Freshman Seminar, Citizenship/Public Ethics and Writing Intensive. (1-3 cr [max 6 cr.]. Prereq—Fr)
Interdisciplinary seminar. Topics specified in Class Schedule.

EdHD 1909W. Freshman Seminar, International Perspectives and Writing Intensive. (1-3 cr [max 6 cr.]. Prereq—Fr)
Interdisciplinary seminar. Topics specified in Class Schedule.

EdHD 1910W. Freshman Seminar, Writing Intensive. (1-3 cr [max 6 cr.]. Prereq—Fr)
Interdisciplinary seminar. Topics specified in Class Schedule.

EdHD 3001. Exploring the Teaching Profession. (1 cr; max 4 cr; S-N only. Prereq—Early admit for init lic/ MEd program)
Self as teacher, the culture of teaching, as learners, learning contexts, societal influences on teaching/ schools.

EdHD 5001. Learning, Cognition, and Assessment in the Schools. (3 cr; A-F only. Prereq—MEd/init lic student or CLA music ed or preteaching major or #; psych course recommended)
Principles of Learning, cognition, cognitive development, classroom management, motivation, instruction, assessment. Approaches include behaviorism, cognitive and social constructivism, human information processing theory. Topics include intelligence, knowledge acquisition, reasoning skills, scholastic achievement, standardized testing, reliability, validity, student evaluation, performance assessment, portfolios, demonstrations. Applications to instruction and organization of curricular materials.

EdHD 5003. Developmental and Individual Differences in Educational Contexts. (3 cr; A-F only. Prereq—MEd/init lic or CLA music ed or preteaching major or #)
Overview of developmental and individual differences of children and adolescents in educational contexts; emphasis on a dynamic systems perspective; developmental transitions in childhood and adolescence; interactions between the student, environment, and task; and accommodations and adaptations for students in special education.

EdHD 5005. School and Society. (2 cr; A-F only. §EdPA 5090. Prereq—MEd/init lic student or CLA music ed major or preteaching major or #)
Readings in history, philosophy, social sciences, and law revealing diverse educational values in a pluralistic society. Multiple expectations of schools. Civil liberties, rights, community. Varying cultural backgrounds of students, family circumstances, exceptional needs.

EdHD 5007. Technology for Teaching and Learning. (1.5 cr; A-F only. §5007 (qtr version), §CI 5300. Prereq—MEd/init lic or CLA music ed major or preteaching major or #; basic computer skills)
Diverse educational technology in K-12 classrooms. Effective use of technology. Computer technologies used to stimulate personal productivity/communication and to enhance teaching/learning processes.

EdHD 5009. Human Relations: Applied Skills for School and Society. (1 cr; A-F only. Prereq—MEd/init lic or CLA music ed or preteaching or #)
Issues of prejudice/disadvantage in terms of history, power, social perception. Knowledge/skills acquisition in cooperative learning environment, multicultural education, group dynamics, social influence, leadership, judgment, decision making, prejudice reduction, conflict resolution, teaching in diverse educational settings.
Educational Policy and Administration (EdPA)
Department of Educational Policy and Administration
College of Education and Human Development

EdPA 1080. Special Topics in Leadership. (1-3 cr) [max 6 cr; A-F only. Prereq–Grad student]
In exercising leadership. Competing loyalties and interests. Ethical dilemmas. Different styles of leadership in real/hypothetical societies. Students integrate lessons learned from core leadership courses, choose from a variety of settings (e.g., community organizations, corporations, University student organizations, education).

EdPA 4303W. Leadership in the World. (3 cr; A-F only. Prereq–3302W or 3961W) Completed field experience, underguidance by instructor. Leadership theory, community building, social change, interdisciplinary approaches to complex global issues. Students finalize portfolios, submit scholarly products to demonstrate understanding of personal/positional leadership in changing global context. Capstone course.


EdPA 5021. Historical Foundations of Modern Education. (3 cr) Analysis and interpretation of important elements in modern education derived from pre-classical sources: Greeks, Romans, Middle Ages, Renaissance, Reformation, Enlightenment, Industrial Revolution.

EdPA 5023. History of Western Educational Thought. (3 cr) Great educational classics of Western civilization: Plato, Aristotle, Quinilian, Montaigne, Milton, Locke, Rousseau, and others.

EdPA 5024. History of Ideas in American Education. (3 cr) Readings in American cultural development related to education, including: Franklin, Jefferson, Mann, T. W. Hogg, N. Tinbergen, Dewey, Special reference to the emerging system of public education in changing contexts, agrarian to urban-industrial, moderate pluralism to intense diversity.

EdPA 5028. Education Imagery in Europe and America. (3 cr) Images and ideas of education expressed in the visual arts of Western civilization (antiquity to 20th century) in relation to concurrent educational thought and practice; symbolism, myth, propaganda, didacticism, genre, caricature.

EdPA 5032. Comparative Philosophies of Education. (3 cr) Exploration of the principal philosophies in educational thought today, e.g., realism, idealism, pragmatism, and postmodernism. Practice in philosophical critique.

EdPA 5036. Ethics, Morality, and Values in Education. (3 cr) Application to key issues of professional practice. Moral education, virtues, principles.

EdPA 5041. Sociology of Education. (3 cr) Analysis of socio-cultural factors influencing educational organizations and their social contexts, particularly related to educational change.

EdPA 5044. Introduction to the Economics of Education. (3 cr) Costs and economic benefits of education, with a focus on K-12; educational markets, prices, and production relationships; investment and cost-benefit analysis.


EdPA 5056. Case Studies for Policy Research. (3 cr; A-F only. Prereq–Grad student) Qualitative case study research methods and their applications to educational policy and practice. Emphasis on designing studies that employ open-ended interviewing as primary data collection technique.

EdPA 5061. Ethnographic Research Methods. (3 cr) Practice in fields of methodology below the level of full field study: detailed analysis of concepts of anthropological and educational practice.

EdPA 5064. Divergent Perspectives in Educational Policy and Practice. (3 cr) Examines fundamental and current issues in the field of education. Participants learn to approach an issue from multiple perspectives, develop skills to identify and analyze its component parts, and examine personal belief systems to place a given issue within a personal context.

EdPA 5070. Special Topics: School Leadership. (1.5-5 cr) [max 15 cr] Prereq–BA or BS or other baccalaureate degree) Skills/knowledge necessary to respond to multiple challenges of reduced budgets, increased accountability requirements, and growing concerns about impact of technology on education.

EdPA 5080. Special Topics: Educational Policy and Administration. (1-3 cr [max 24 cr]) Topical issues in educational policy/administration.

EdPA 5087. Seminar: Educational Policy and Administration. (1-3 cr [max 24 cr]) Course or independent study on specific topic within department program emphasis.

EdPA 5095. Problems: Educational Policy and Administration. (1-3 cr [max 24 cr]) Course or independent study on specific topic within department program emphasis.

EdPA 5096. Internship: Educational Policy and Administration. (1-3 cr [max 24 cr]) Internship in elementary, secondary, general, or postsecondary administration, or other approved field related setting.

EdPA 5101. International Education and Development. (3 cr) Introduction to comparative and international development education, contemporary theories regarding the role of education in the economic, political, and sociocultural development of nations; examination of central topics and critical issues in the field.

EdPA 5102. Knowledge Formats and Applications: International Development Education Contexts. (3 cr) Analyzes the interrelationships of “knowledge capital” (noetic symbolic resources) and culture through intrinsic, cross-, and multicultural perspectives. Distinguishes knowledge from information and data, focusing on national and international developments occurring along basic and applied knowledge paths.

EdPA 5103. Comparative Education. (3 cr) Examination of systems and philosophies of education globally with emphasis upon African, Asian, European, and North American nations. Foundations of comparative study with selected case studies.

EdPA 5104. Strategies for International Development Education Systems. (3 cr; A-F only. Prereq–Grad student) Strategies for improving quality/efficiency of schooling in developing countries. Introduction to current research on what policy/programmatic interventions have proven most successful in increasing access, raising quality, and improving efficiency of education in developing countries.

EdPA 5121. Educational Reform in International Context. (3 cr) Critical policy analysis of educational innovation and reform in selected countries. Use theoretical perspectives and a variety of policy analysis approaches to examine actual educational reforms and their implementation.
Course Descriptions

EdPA 5124. Critical Issues in International Education and Educational Exchange. (3 cr)
Analysis of comprehensive policy-oriented frameworks for international education; practices of U.S. and other universities; conceptual development of international education and its practical application to programs; to employment choices, and to pedagogy.

EdPA 5128. Anthropology of Learning. (3 cr)
Cross-cultural perspectives in examining educational patterns; the implicit and explicit cultural assumptions underlying them. Methods and approaches to cross-cultural studies in education.

EdPA 5132. Intercultural Education and Training: Theory and Application. (3 cr)
Examination of intercultural education; formal and nonformal education programs intended to teach about cultural diversity, promote intercultural communication and interaction skills, and teach students from diverse background more effectively.

EdPA 5301. Contexts of Learning: Historical, Contemporary, and Projected. (3 cr; A-F only)
Contextual understanding of education as a social institution. Education is studied as one institution among the several that constitute its dynamic context.

EdPA 5302. Educational Policy: Context, Inquiry, and Issues. (3 cr)
Review of social science concepts/research in considering educational policies/issues, process of inquiry that affect policy development, implementation, evaluation. Focus on pre K-12. Role of educational leaders/administrators.

EdPA 5303. Managing the Learning Organization. (3 cr; A-F only)
Examines schools, colleges, and other human service organizations centered on learning. Focuses on perspectives and skills needed to manage organizations effectively.

EdPA 5304. Educational Leadership for Equity, Opportunity, and Outcome. (3 cr)
Implications of multiple contexts in which leadership occurs. Role of followers. Complexities of collaborative structures and of shared governance.

EdPA 5305. Leadership and Vision in School Technology. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
Implications of multiple contexts in which leadership occurs. Role of followers. Complexities of collaborative structures and of shared governance. How to create and maintain vision for comprehensive integration of technology into educational environments. Ways to foster environment/culture conducive to realizing that vision.

EdPA 5306. Staff Technology Development and Support. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
How to lead an organization in designing, implementing, evaluating, improving, and sharing approaches to staff development. Technology-related development. Facilitating staff development through use of technology.

EdPA 5307. School Management and Technology. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
Various organizational/management issues impacted by information technology. Focuses on hardware, software, and database technologies designed to facilitate management/operations of school organizations.

EdPA 5308. Emerging Issues and School Technology. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
Needs of schools/administrators to remain on forefront of information technologies. Focuses on anticipated technological trends years/decades ahead.

EdPA 5309. Electronic Communication Tools and Environments for Schools. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
Various electronic communication channels, information environments to facilitate educational organizations’ operations/communication. Focuses on networked environments, integration with handheld computers, and outreach to internal/external stakeholders.

EdPA 5310. Data-Driven Decision-Making I. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
Data-driven decision-making needs of schools/administrators. Focuses on data collection/analysis needs of educational organizations and on use of appropriate software/databases to collect, manage, analyze, and report school information.

EdPA 5311. Data-Driven Decision-Making II. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
Continuation of 5310. Dimensions of decision-making needs of schools/administrators. Hands-on training in students’ own organizations in using technology to analyze data to make educational decisions.

EdPA 5312. School Technology Policy Issues. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
Various state/national policy issues related to educational technology. Focus on “digital divide” in schools/communities, federal educational technology policy initiatives, and state/federal educational technology legislation.

EdPA 5313. Legal and Ethical Issues in School Technology. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
Social, legal, and ethical issues related to school technology. How to model responsible decision-making related to these issues.

EdPA 5314. School Technology Safety and Security. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #

EdPA 5315. School Technology Leadership Multimedia Project. (1 cr. Prereq.–[Mac or PC] with 256 MB RAM, [Windows NT 2000 or XP or Mac OS 9 or 10], Pentium [2 or faster], internet connection, [Netscape or Internet Explorer], virus protection software, School Technology Leadership) or #
Students focus on individualized school technology leadership topic of choice, deliver a multimedia presentation of project results. Regular consultation with faculty, peer mentors, and outside mentors.

EdPA 5321. The Principalship. (3 cr)
Role of the principal: qualifications, duties, and problems.

EdPA 5322. School Superintendency. (3 cr)
Role/responsibility of superintendent in school district. Emphasizes real life experiences, leadership potential as CEO. Purposes, power, politics, practices of position. Interplay of internal school forces, external community forces analyzed in multiple contexts. Manifestations of leadership in public, high-profile appointment.

EdPA 5323. Women in Leadership. (3 cr. Prereq.–Technology access)
Women in leadership, in context of larger systems and their own lives. Supporting equity/equality across areas of difference.

EdPA 5324. Financial Management for Elementary-Secondary Education. (3 cr)
Provides an overview of state-local school finance systems, budgeting, governmental fund accounting, and interpretation of financial information. For graduate students pursuing licensure as elementary-secondary principals and superintendents.

EdPA 5325. Analytical Tools for Educational Leadership. (1 cr. Prereq.–#)
Technological/analytical tools associated with data-driven decision-making processes in K-12 school environments.

EdPA 5326. Data Analysis for Educational Leadership. (2 cr. Prereq.–[5325 or equal], #)
Advanced technological/analytical tools associated with data-driven decision-making processes in K-12 school environments.

EdPA 5328. Introduction to Educational Planning. (3 cr)
Principles, tools, comparative practices, and emerging issues in K-12 and higher education settings; decision making; strategic and project planning; barriers to effectiveness; and change management processes.

EdPA 5332. Leadership Development Seminar. (3 cr)
Assessment and development of skills required of the educator in planning, decision making, and human relations. Introduction to contemporary issues in educational administration.

EdPA 5336. Laboratory in Decision Making. (3 cr)
Contributions of recent research and theory to effective administration. Analysis of administrative behavior in realistic settings; relations of administration to human behavior.

EdPA 5341. The American Middle School. (3 cr)
Focus on the uniqueness of the early adolescent and appropriate learning situations. For educators working with middle-level students.

EdPA 5344. Legal Aspects of Elementary and Secondary Education. (3 cr)
Overview of legal foundations of elementary/secondary education. Statutory themes, relevant case law, emergent policy issues. Implications for educational organizations and for administrative practice.

EdPA 5346. Politics of Education. (3 cr; A-F only Prereq–Postbac, MEd, or grad student)
Political dimensions of policy formulation/implementation in education. Use of power/influence in shaping educational policies and in resolving conflicts over educational issues. Analysis of consequences/cross-impacts.

EdPA 5348. Administration of Human Resources in Education. (2 cr. Prereq–Designed for students working on licensure for dir of community educ or superintendent or K-12 principal or dir of special educ)
Effective personnel practices. Skills required for effective administrator/leader. Emphasizes human resources administration, including employee recruitment, selection, orientation/support, supervision, and performance appraisal of school district personnel.

EdPA 5352. Projective Leadership for Strategic Learning Communities. (3 cr)
Explores many trends and changes facing society, culture, and education from a strategic learning community perspective; helps students “futurize the present.”

EdPA 5356. Disability Policy and Services. (3 cr)
Policy, research, and current practices related to education, health, and social services that support children, youth, and adults with special needs, and that support their families. Federal, state, and local perspectives.
EdPA 5361. Project in Teacher Leadership. (3 cr; S-N only. Prereq—MED student in Teacher Leadership Program) Create, implement, and present a leadership project designed to initiate positive change in educational environments. Review of related literature, proposal development, project development, implementation and evaluation, critical reflection, sharing learning outcomes.

EdPA 5364. Context and Practice of Educational Leadership. (3 cr; A-F only) Current research/practice on educational leadership. Focuses on creating school cultures conducive to continuous improvement/change. Strategies for personal/organizational leadership in PK-12 settings.

EdPA 5368. Special Services Policy and Administration. (3 cr) Legislative, procedural, executive, and judicial actions that affect services, families, and children with special needs at all levels of government: federal, state, and local. For administrators, supervisors, and other professionals responsible for managing general, special, and alternative education programs.

EdPA 5372. Youth in Modern Society. (3 cr) Youth in advanced societies and as a social entity; functions and roles in industrial society, family, education, politics and government, economy and work, welfare and religion; organizations, social movements, and subcultures; empirical research and cross-cultural perspectives.


EdPA 5376. Organizational Approaches to Youth Development. (3 cr) Defining youth development within framework of formal and informal organizations; organizational systems responsible for youth development in the community; policy issues surrounding these systems.


EdPA 5381. The Search for Children and Youth Policy in the U.S. (3 cr) Review of contemporary policy issues affecting children and youth in the U.S. and South Africa; identify national standards, norms and principles of youth development; conflicting expectations facing policy-makers; and search for the critical content of youth policy.

EdPA 5384. Collaboration in Heterogeneous Classrooms and Schools. (3 cr; A-F only) Policy, research, practice base for addressing range of student abilities/backgrounds in diverse schools. Collaborative approaches to curricular, instructional, social support.

EdPA 5385. Licensure Seminar. (1 cr; max 4 cr; S-N only) Preparation for licensure program. Program overview, preassessment, reflective practice, APA writing, exit panel review, administrative employment interview.

EdPA 5386. Portfolio Seminar. (1 cr; max 4 cr; S-N only) Development of electronic administrative licensure portfolio as part of process to earn endorsement for license as a school superintendent, K-12 principal, director of special education, or director of community education.

EdPA 5387. Administration of Teaching and Learning. (1 cr) Administration of teaching/learning as a system in an inclusive school system. Multiple experts present components of system. Focuses on questions an administrator must address when functioning as leader of learning.


EdPA 5389. Administration of Community and Alternative Education Programs. (3 cr) Competencies of leadership, community relations, communication, community assessment, program development, program evaluation. Philosophy/administration of community/alternative education programs.

EdPA 5396. Field Experience in PK-12 Educational Administration. (3 cr; max 6 cr; S-N only. Prereq—#) Field experience or internship arranged for students seeking licensure as PK-12 principal/supersintendent. Content/credit depend on licensure requirements specified in individual field experience agreement.

EdPA 5501. Principles and Methods of Evaluation. (3 cr) Introduction to program evaluation. Planning an evaluation study, collecting and analyzing information, reporting results; evaluation strategies; overview of the field of program evaluation.

EdPA 5521. Cost and Economic Analysis in Educational Evaluation. (3 cr; S-N only) Use and application of cost-effectiveness, cost-benefit, cost-utilty, and cost-feasibility in evaluation of educational programs and programs.

EdPA 5524. Evaluation Colloquium. (1 cr; max 24 cr; S-N only. Prereq—5501 or EPsy 5243) Informal seminar of faculty and advanced students. Issues/problems of program evaluation.

EdPA 5701. U.S. Higher Education. (3 cr) U.S. higher/postsecondary education in historical/contemporary perspective. Emphasizes structure, history, and purposes of system as a whole.


EdPA 5721. Racial and Ethnic Diversity in Higher Education. (3 cr) Review of research. Theoretical frameworks, methodological perspectives, and research strategies used to study students, staff, and faculty; historical perspectives.

EdPA 5724. Leadership and Administration of Student Affairs. (3 cr) Scope, administration, coordination, and evaluation of programs in college and university student affairs.


EdPA 5728. Two-Year Postsecondary Institutions. (3 cr) Present status, development, functions, organization, curriculum, and trends in postsecondary, nonbaccalaureate institutions.

EdPA 5732. The Law and Postsecondary Institutions. (3 cr) Analysis of court opinions and federal regulations affecting postsecondary educational institutions.

EdPA 5734. Institutional Research in Postsecondary Education. (3 cr; A-F only. Prereq—[5701, (EPsy 5231 or Epsy 8261), grad student or #) Scope, role, administration, research strategies, and evaluation of institutional research in postsecondary institutions. Overview of research methodologies, disciplinary foundations of institutional research. Use of institutional, state, and national databases in addressing full range of institutional missions/functions.

EdPA 5795. Plan B Research Design. (3 cr; max 6 cr; A-F only. Prereq—Grad student) Foundation to design Plan B research project relevant to student’s professional interests. Literature review strategies to establish conceptual framework for project. Relates research question to design alternatives and to associated qualitative/quantitative analysis techniques. Issues such as human subjects and APA guidelines for preparing research papers.

Epsy 1600. Special Topics: Developing Special Educational and Human Service Programs. (1-4 cr; max 15 cr. Prereq—#) Explores the concepts, issues, and practices in developing special education and human services for persons with disabilities. Appropriate for persons in paraprofessional positions.

Epsy 3111. Introduction to Critical Thinking. (3 cr) Prominent issues and research findings related to critical thinking. How to critically evaluate controversies/arguments in editorials and published essays. Applications of critical thinking to various fields.

Epsy 3111W. Introduction to Critical Thinking. (3 cr) Prominent issues and research findings related to critical thinking. How to critically evaluate controversies/arguments in editorials and published essays. Applications of critical thinking to various fields.

Epsy 3119. Learning, Cognition, and Assessment. (3 cr; A-F only) Principles of learning, cognition, cognitive development, classroom management, motivation, instruction, and assessment. Topics: behaviorism, cognitive and social constructivism, human information processing theory, intelligence, knowledge acquisition, reasoning skills, scholastic achievement, standardized testing, reliability, validity, student evaluation, performance assessment, and portfolios.

Epsy 3132. Psychology of Multiculturalism in Education. (3 cr; A-F only) Course critically examines social and cultural diversity in the United States and abroad, focusing on social issues of poverty, handicapsm, homophobia, racism, sexism, victim-blaming, violence, and so on, and presenting models for change. Students examine how and why prejudices develop.

Epsy 3133. Practicum: Service Learning, Psychology of Multiculturalism in Education. (1 cr; max 3 cr. Prereq—[3132 or #] Thirty hours of service learning in multicultural communities. Students work with children, youth, or adults in ESL tutoring or after-school youth programs. Sensitivities/competencies related to multicultural issues in U.S. society.

Epsy 3134W. Social Diversity and Deculturalization in Education. (3 cr) How educational practices affect cultures of minority-status peoples in the United States. Emphasizes historical/contemporary educational issues of deculturalization related to assimilation, segregation, integration, and educational labeling, achievement, and interaction of students.


Epsy 3200. Special Topics in Educational Psychology. (1-4 cr; max 9 cr) Current issues in educational psychology or related coursework in areas not normally available through regular curriculum offerings.

For definitions of course numbers, symbols, and abbreviations, see page 300.
Course Descriptions

EPsy 4300. Special Topics in Educational Psychology. (3 cr; max 9 cr) Current issues in educational psychology or related coursework in areas not normally available through regular curriculum offerings.


EPsy 5101. Intelligence and Creativity. (3 cr; A-F only) Contemporary theories of intelligence and intellectual development and contemporary theories of creativity and their implications for educational practices and psychological research.

EPsy 5112. Knowing, Learning, and Thinking. (4 cr; A-F only) Principles of human information processing, memory, and thought; mental operations in comprehension and problem solving; developing expertise and automaticity; emphasis on applied settings.

EPsy 5113. Psychology of Instruction and Technology. (3 cr) Introduction to adult learning and instructional design. Application of core foundational knowledge to developing effective learning environments for adults. Topics include philosophy, learning theories, instructional models, development and experience, individual differences, evaluation, assessment, and technology.

EPsy 5114. Psychology of Student Learning. (3 cr; A-F only) Principles of educational psychology: how learning occurs, why it fails, and implications for instruction. Topics include models of learning, development, creativity, problem-solving, intelligence, character education, motivation, diversity, special populations.

EPsy 5115. Psychology of Adult Learning and Instruction. (3 cr) Survey of adult learning/instruction. Emphasizes instructional design, learning theories, experience, individual differences, evaluation, tests/measurement, technology. Implications for curricular/instructional design in higher education, continuing education, professional/business related training.

EPsy 5117. Problem Solving and Decision Making. (3 cr; A-F only) Strategies, rules, methods, and other cognitive components involved in problem solving and decision making, implications for educational practices, and applied domains.

EPsy 5135. Human Relations Workshop. (4 cr) Experiential course addressing issues of prejudice and discrimination in terms of history, power, and social perception. Includes knowledge and skills acquisition in cooperative learning, multicultural education, group dynamics, social influence, effective leadership, judgment and decision-making, prejudice reduction, conflict resolution.

EPsy 5151. Cooperative Learning. (3 cr) Participants learn how to use cooperative learning in their setting. Topics include theory and research, teacher’s role, essential components that make cooperation work, teaching social skills, assessment procedures, and collegial teaching teams.

EPsy 5152. Psychology of Conflict Resolution. (3 cr) Overview of the field of conflict resolution. Major theories, research, major figures in the field, factors influencing quality of conflict resolution are covered. The nature of the conflict, the history of field, and intrapersonal, interpersonal, intergroup conflict, negotiation, mediation are discussed.

EPsy 5154. Organization Development and Change. (3 cr) Overview of organizational development and change. Normative models of effective organizations, entry, and contracting skills, diagnosis procedures and intervention procedures (data feedback, skills training, continuous improvement, mediation).

EPsy 5155. Group Dynamics and Social Influence. (3 cr) Overview of the field of group dynamics with emphasis on major theories, research, and figures in the field are covered. Group goals, communication, leadership, decision making, problem solving, conflicts, power, uniqueness theory, deindividuation, and minority influence will be covered.

EPsy 5157. Social Psychology of Education. (3 cr; A-F only) Overview of social psychology and its application to education. Participants study the major theories, research, and major figures in field. Class sessions include lectures, discussions, simulations, role-plays, and experiential exercises.

EPsy 5158. Using Power and Influence to Effect Change. (3 cr. Prereq: 5xxx course in social sciences or #) How people can influence others and avoid manipulation. Factors that shape extent to which influence is successful. Indirect/direct influence processes, minority influence, motivation, behavior management, conformity, followship, group dynamics.

EPsy 5191. Education of the Gifted and Talented. (3 cr; A-F only) Theories of giftedness, talent development, instructional strategies, diversity and technological issues, implications for educational practices and psychological inquiry, and international considerations.

EPsy 5200. Special Topics: Psychological Foundations. (1-4 cr; max 30 cr) Focus on special topics in psychological and methodological concepts relevant to advanced educational theory, research, and practice not covered in other courses.

EPsy 5216. Introduction to Research in Educational Psychology. (3 cr; A-F only. Prereq: 5261 or other intro statistics course) Introduction to educational research, leading students through the basic steps involved in designing and conducting a research study. Topics include literature review, formulating research problem, using different approaches to gather data, managing and analyzing data, and reporting results.

EPsy 5221. Principles of Educational and Psychological Measurement. (4 cr. Prereq: 5261 or equiv) Concepts, principles, and methods in educational/psychological measurement. Reliability, validity, item analysis, scores, score reports (e.g., grades). Modern measurement theories, including item response theory and generalizability theory. Emphasizes construction, interpretation, use, and evaluation of assessments regarding achievement, aptitude, interests, attitudes, personality, and exceptionality.


EPsy 5231. Introductory Statistics and Measurement in Education. (4 cr. Prereq: 5261, 5263) Students develop an understanding of basic statistics and measurement concepts and tools and apply them to the collection, analysis, and interpretation of data.

EPsy 5243. Principles and Methods of Evaluation. (3 cr) Introductory course in program evaluation; planning an evaluation study, collecting and analyzing information, reporting results; overview of the field of program evaluation.

EPsy 5244. Survey Design, Sampling, and Implementation. (3 cr. Prereq: [5221 or 5231 or 5261 or equiv], [CEHD grad student or MEd student]) Survey methods, including mail, phone, and Web-based/mail surveys. Principles of measurement, constructing questions/forms, pilot testing, sampling, data analysis, reporting. Students develop a survey proposal and a draft survey, pilot the survey, and develop sampling/data analysis plans.

EPsy 5246. Evaluation Colloquium: Psychological Foundations. (1 cr; max 8 cr) S-N only. Prereq: 5243/EdPA 5500 Informal seminar of faculty and advanced students interested in the issues and problems of program evaluation.

EPsy 5247. Qualitative Methods in Educational Psychology. (3 cr. Prereq: Grad student) Introduction to qualitative methods of inquiry. Contrasting different research traditions (e.g., case study, phenomenology, ethnography, social interactionism, critical theory). Practice with field notes, observations, and interviewing. Use of NVIVO to track/code data.


EPsy 5273. Methodology Teaching Internship. (1 cr; max 2 cr; S-N only. Prereq: Grad student) Supervised teaching experience as part of a course in statistics, measurement, or evaluation.

EPsy 5281. Introduction to Computer Operations and Data Analysis in Education and Related Fields. (3 cr; S-N only) Introductory computer literacy course to familiarize students with personal computers and computing resources at the University. Applications include electronic communications, spreadsheets, graphical presentation, and data analysis.

EPsy 5300. Special Topics in Educational Psychology. (1-3 cr; max 9 cr) Current issues in educational psychology or related areas not normally available through regular curriculum offerings.

EPsy 5400. Special Topics in Counseling Psychology. (1-4 cr; max 8 cr) Theory, research, and practice in counseling and student personnel psychology. Topics vary.


EPsy 5412. Introduction to Developmental Counseling and Guidance. (3 cr. Prereq: #) Contemporary models of counselors as advocates for all students. Emphasizes prevention and systems intervention with counselors involved in the developmental guidance curriculum, school change, staff and community collaboration, individual student planning, and learning success with diverse populations.
Course Descriptions

Epsy 5415. Child and Adolescent Development and Counseling. (3 cr; A-F only. Prereq-Grad student or MEd student, or counseling endorsement or licensure) Development, issues, and needs of children, kindergarten through high school ages. Counseling/developmental theory/strategies, family/social environment. Cultural diversity, legal/ethical issues in counseling children/adolescents.

Epsy 5421. Leadership and Administration of Student Affairs. (3 cr; A-F only) Theoretical approaches, administrative structure, and evaluation methods used in college/university student affairs.

Epsy 5422. Principles of Group Work: Theory and Procedures. (3 cr. Prereq-Advanced undergrad or grad student in the helping professions) Principles and practices of group work for educators and the helping professions. Discussion of various types of groups (e.g., counseling support, task, psychoeducational). Applications to various settings and populations (e.g., schools and community agencies).

Epsy 5432. Foundations of Individual/Organizational Career Development. (3 cr; A-F only) Introduction to individual and organizational career development theory and practice. Examines critical issues in work patterns, work values, and workplaces in a changing global society, with implications for career planning, development, and transitions, emphasizing personal and organizational change. For nonmajors: serves students in adult ed, HRD, IR, college student advising, and other related fields.

Epsy 5433. Counseling Women Over the Life Span. (3 cr. Prereq-Counseling or career development course) Counseling skills and interventions to facilitate career development of girls and women of different life stages and backgrounds (school girls to older women); developmental issues from a systemic integrative life planning framework; facts, myths, and trends regarding women’s changing roles.

Epsy 5434. Counseling Adults in Transition. (3 cr. Prereq-Advanced undergrad or grad student in the helping professions) Psychological, physical, and social dimensions of adult transitions (e.g., family and personal relationships, career). Adult development theories, stress and coping, and helping skills and strategies as they relate to adult transition.

Epsy 5451. The College Student. (3 cr) The psychology and sociology of college students, including research concerning diversity of populations, vocational development of students, student society, culture, mental health, underachievement, dropouts, values and attitudes, and relevant research methods.


Epsy 5601. Survey of Special Education. (2 cr) Introduction to programs and services provided to people with disabilities in school and community settings. Emphasis on the needs of families, to the roles and responsibilities of teachers, and to related service providers.

Epsy 5604. Transition from School to Work and Community Living for Persons With Special Needs. (2 cr) Design of training programs to promote independent living. Vocational and community adjustment for persons with disabilities and who are at-risk. Curriculum materials, methods, and organizational strategies for adolescents and adults, families, and community service providers.

Epsy 5609. Family-Centered Services. (2 cr; A-F only) Methods for collaborating with families in the education of children with disabilities. Focus on family-centered approach to design of educational plans and procedures. Specific emphasis on multicultural perspectives of family life and expectations for children.

Epsy 5612. Understanding of Academic Disabilities. (3 cr; A-F only) Introduction to issues related to the education of students with academic disabilities (learning disabilities, mild intellectual disabilities, and emotional/behavorial disabilities) including history, definition, assessment, classification, legislation, and intervention approaches.

Epsy 5613. Foundations of Special Education I. (3 cr; A-F only. Prereq-Child development course, 5601 or equiv) Emphasis on the organization of educational programs and services for people with disabilities and their families. First course for students seeking to become licensed teachers in special education.

Epsy 5614. Foundations of Special Education II. (3 cr; A-F only. Prereq-5613) Emphasis on assessment, planning, and implementing educational programs for people with disabilities. Second course for students seeking to become licensed teachers in special education.

Epsy 5615. Advanced Academic Interventions. (3 cr; A-F only. Prereq-5612) Develop knowledge and skills in designing, implementing, and evaluating Individual Educational Plans (IEPs) for students eligible for special education service in learning disabilities, emotional/behavioral disorders, and mild mental intellectual disabilities.

Epsy 5616. Behavior Analysis and Classroom Management. (3 cr) Introduction to assumptions, principles, and procedures of behavioral approach to analyzing behavior and programs for classroom management. Emphasis on specifying problems, conducting observations, intervening, and evaluating behavioral change.

Epsy 5621. Functional/Basic Academic Interventions in Mental Retardation. (3 cr; A-F only. Prereq-5613, 5614) Methods and materials course emphasizing functional approaches to promoting academic learning in students with mild to moderate mental retardation and moderate to severe mental retardation.

Epsy 5622. Programs and Curricula for Learners With Severe Disabilities. (3 cr. Prereq-5616) Emphasis on developing programs and curricula for students with moderate, severe, and profound developmental delays, as well as severe multihandicapping conditions. Special consideration given to preparing children and youth for integrated community environments.


Epsy 5626. Seminar: Developmental Disabilities and Instructional Management. (3 cr. Prereq-5621, 5622) or #) Data-based strategies for school and nonschool instruction of learners with developmental disabilities including assessment, design, implementation, and evaluation of curriculum and instruction: curriculum and task analysis, classroom arrangements, natural and instructional cues, corrections, and consequences.

Epsy 5635. Education of Students With Physical and Health Disabilities. (3 cr; A-F only. Prereq-5601 or #) Introduction to students with physical and health disabilities and their characteristics; the educational implications of physical disabilities; assessment procedures and appropriate educational interventions for learners with physical and health disabilities.

Epsy 5636. Education of Multihandicapped Learners With Sensory Impairments. (2 cr. Prereq-5613, 5614) Characteristics of learners with visual and auditory impairments; design of instructional programs to Remediate or circumvent disabilities, including use of prosthetic devices; related areas of performance affected by sensory impairments.

Epsy 5641. Foundations of Education for Individuals Who Are Deaf/Hard of Hearing. (3 cr) Historical and current issues related to education of individuals who are deaf or hard of hearing. Implications of causes of hearing loss, social and cultural relationships, philosophies of education, characteristics and legislative guidelines and their applicability to education of individuals who are deaf or hard of hearing.


Epsy 5646. Reading and Writing Practices With Deaf/Hard of Hearing Children. (3 cr. Prereq-5644 or general educ methods in tchg reading and writing skills, or #) Gain knowledge and skills to assess, plan, and implement instruction for children and youth with hearing loss. Emphasis is placed on research, theoretical, and programmatic issues in developing reading and writing skills, curricular adaptations, and effective instructional approaches.

Epsy 5647. Aural and Speech Programming for Persons Who Are Deaf/Hard of Hearing. (3 cr) Study of the speech and hearing mechanisms, causes of hearing loss, and rehabilitation. Emphasis on instructional practices, aural rehabilitation in the educational setting, adaptive technology, and adaptations to optimize functional skills with individuals who are deaf or hard of hearing.


Epsy 5649. Models of Instructional Programming With Deaf and Hard of Hearing Students. (3 cr. Prereq-5641, 5644, or #) Design/development of portfolios for various models of educational service delivery systems for individuals with hearing loss. Emphasizes consultation skills, curriculum management/modifications, material/technology applications, and support service adaptations.

Epsy 5656. Social and Interpersonal Characteristics of Students With Disabilities. (3 cr; A-F only) Emphasis on children and youth of school age and on the ways in which their emotional, social, and behavioral disorders affect their functioning in school and on ways in which their behaviors disturb others.

For definitions of course numbers, symbols, and abbreviations, see page 300.
Course Descriptions

EPsy 5657. Interventions for Social and Emotional Disabilities. (3 cr; A-F only. Prereq–5516, 5656) Develop behavioral programs for students with social and emotional disabilities. Instruction students with social and emotional disabilities.

EPsy 5671. Literacy Braille. (3 cr; A-F only) Mastery of the Nemeth code for braille mathematics transcription including elementary math computation, algebra, geometry, trigonometry, and symbolic logic notation. Introduction to foreign languages, computer notation, music, and raised line drawing techniques.

EPsy 5674. Techniques of Orientation, Mobility, and Independence for Students With Visual Disabilities. (3 cr; A-F only. Prereq–5657 or #) Introduction to basic techniques to gain skills in pre-cane techniques, orientation to learning environments, and adaptations for activities of daily living and independence. Introduction to mobility maps, consideration of cane, guide dog, and telescopic aids to mobility.


EPsy 5681. Education of Infants, Toddlers, and Preschool Children With Disabilities: Methods and Materials. (3 cr; A-F only. Prereq–5625) Overview of the methods and materials available to maximize the developmental and educational outcomes for young children, birth to age 5, with disabilities and their families in home, community, and school based-settings.

EPsy 5701. Practicum: Field Experience in Special Education. (1-6 cr [max 12 cr]; A-F only. Prereq–5614, [FOE or SPed grad or licensure student]) or #) Observations and supervised support of teaching practice in schools or agencies serving children with disabilities in integrated programs.

EPsy 5720. Special Topics: Special Education. (1-4 cr [max 12 cr]; Prereq–#) Lab and fieldwork approach, often assuming a product orientation, e.g., generation of action plan, creating set of observation field notes, collecting data in some form. Provides opportunities for educational personnel to study specific problems and possibilities related to special education.

EPsy 5740. Special Topics: Interventions and Practices in Educational and Human Service Programs. (1-4 cr [max 8 cr]. Prereq–#) Concepts, issues, and practices related to the community inclusion of children, youth, and adults with developmental disabilities through weekly seminar and extensive supervised experience working with individuals within the community.

EPsy 5751. Student Teaching: Deaf/Hard of Hearing. (1-6 cr [max 10 cr]; Prereq–#) Students participate in educational programming for infants, children, and youth who are deaf or hard of hearing, as well as in onsite, directed experiences under the supervision of master teachers of deaf and hard of hearing students.

EPsy 5752. Student Teaching: Learning Disabilities. (1-6 cr [max 10 S-N only. Prereq–#) Supervised experience in teaching or related work in schools or other agencies serving children and adolescents with learning disabilities.

EPsy 5753. Student Teaching: Early Childhood Special Education. (1-6 cr [max 8 cr]; S-N only. Prereq–#, completion of all course requirements for license in ECSE) Supervised experience in teaching or related work in schools, agencies, or home settings with infants, toddlers, and preschoolers with disabilities and their families.

EPsy 5754. Student Teaching: Social and Emotional Disabilities. (1-6 cr [max 8 cr]; A-F only. Prereq–Completion of licensure courses for social and emotional disorders) Teach students with social and emotional disorders at public schools and other appropriate sites. Attend a weekly seminar on student teaching competencies.

EPsy 5755. Student Teaching: Developmental Disabilities, Mild/Moderate. (1-6 cr [max 6 cr]; A-F only. Prereq–Completion of all licensure coursework) Supervised student teaching, or special practicum project, in schools or other agencies serving students at elementary/secondary levels who have mild to moderate developmental disabilities.

EPsy 5756. Student Teaching: Developmental Disabilities, Moderate/Severe. (1-6 cr [max 6 cr]; A-F only. Prereq–Completion of all licensure coursework) Supervised student teaching, or special practicum projects, in schools or other agencies serving students at elementary/secondary levels who have moderate to severe developmental disabilities.

EPsy 5757. Student Teaching: Physical and Health Related Disabilities. (1-6 cr [max 8 cr]; A-F only. Prereq–#) Supervised student teaching and related work (direct instruction and consultation) in schools or other agencies serving children with physical disabilities.

EPsy 5758. Student Teaching: Visual Impairments. (1-6 cr [max 8 cr]; A-F only. Prereq–#) Supervised student teaching, or special practicum project, in schools or other agencies serving children and adolescents who have visual impairments.

EPsy 5800. Special Topics in School Psychology. (1-9 cr [max 9 cr]) Current issues in school psychology or areas not normally available through regular curriculum offerings.

EPsy 5801. Assessment and Decision Making in School and Community Settings. (3 cr; A-F only) Introduction to psychological and educational assessment for individuals who work with children, especially those experiencing academic and behavior problems. Study of standardized group and individual tests and tests of intelligence, achievement, socio-emotional functioning, perception, reading, mathematics, adaptive behavior, and language.

EPsy 5849. Observation and Assessment of the Preschool Child. (3 cr) Introduction to observation and assessment principles and practices, including observational assessment methods, for children (birth to 5). Intended primarily for teachers in training and others interested in basic information regarding assessment and its relationship to intervention services for young children.

EPsy 5851. Collaborative Family-School Relationships. (2-3 cr; Prereq–Honors senior class or grad student) Theoretical and empirical bases for creating collaborative family-school relationships for students’ development and educational success in school. Emphasis on model programs for K-12 and practical strategies for educational personnel to address National Educational goal 8.

EPsy 5852. Prevention and Early Intervention. (3 cr) Theory/research base for school-based primary/secondary programs to promote academic/social competence of children/youth (birth to grade 12).

EPsy 5871. Interdisciplinary Practice and Interagency Coordination in Education and Human Services. (3 cr) Principles and procedures of interdisciplinary practice and interagency coordination. Examine the relative strengths of interdisciplinary approaches, develop skills for collaborating with others, and examine different approaches to interagency coordination.

EPsy 5991. Independent Study in Educational Psychology. (1-8 cr [max 20 cr], A-F only. Prereq–#) Self-determined study in area approved by regular courses. Specific program of study is jointly determined by student and advising faculty member.

Electrical Engineering (EE)

Department of Electrical and Computer Engineering

Institute of Technology

EE 0001L. Refresher Course for Electrical Engineers. (0 cr; A-F only. Prereq–[BSEE or BEE], pass EIT exam, four yrs elec eng experience)

Review of electrical engineering fundamentals required to pass the Minnesota Professional Engineering Examination in electrical engineering. Organized review of material ordinarily contained in electrical engineering college curriculum.

Emphasizes problem solving with orientation as close possible to type of questions in exam.

EE 0301L. Introduction to Digital System Design: Discussion. (0 cr; S-N only. Prereq–EE 2301) Discussion section to go with 2301.

EE 0361L. Introduction to Microcontrollers: Discussion. (0 cr; S-N only. Prereq–EE 2361) Discussion section to go with 2361.

EE 1001L. Introduction to Electrical and Computer Engineering. (1 cr; S-N only. Prereq–Lower div III or A) Introduction to engineering in general and to computer engineering in particular. Exploration of techniques and technologies developed by electrical and computer engineers.


EE 1701W. Energy, Environment, and Society. (3 cr) Energy supply and demand; generation of electricity; environmental impact of energy usage; energy conservation methods; utility deregulation; role of communication and computer services. Demos, computer simulation, teamwork, and projects.


EE 2006. Introductory Circuits Laboratory. (1.5 cr. Prereq–14000 or equiv linear circuits lab). Meets concurrently with an arranged 2002 section.


Applications to emitters, MOSFETs, detectors.
Basic properties of semiconductors, junction diodes.
Applications.


EE 3005. Fundamentals of Electrical Engineering Laboratory. (1 cr. Prereq–¶ 3005) Lab to accompany 3005.


EE 3101. Circuits and Electronics Laboratory I. (2 cr. Prereq–[2002, [1115 or §3115], IT or A) Experiments in circuits/electronics.

EE 3102. Circuits and Electronics Laboratory II. (2 cr. Prereq–[3101], IT or A) Experiments in circuits/electronics. Team design project.

EE 3105. Circuits and Electronics Transition Laboratory. (1-3 cr; S-N only. Prereq–3015 or §3015) Together with 3400, completes the 3015 requirement.


EE 3165. Introduction to Microelectronic Devices With Applications. (3 cr. Prereq–[2001, [3005 or Mat 3011]) or #) Basic properties of semiconductors, junction diodes. Applications to emitters, MOSFETs, detectors, optical devices, magnetic devices. Micromechanical systems. Nanoelectronics.

EE 3601. Transmission Lines. (3 cr. Prereq–[2011, [Math 2243 or Math 2373 or Math 2573], [Phys 1302 or Phys 1402], IT or §) Properties of transmission lines, electrostatics, magnetostatics, and electromagnetic waves in unbounded space. Guides, cavities, radiation theory, antennas.

EE 3940. Special Topics in Electrical and Computer Engineering. (1 cr. Prereq–[max 8 cr], Prereq–#) Topics that are not available in regular courses. Topics vary.

EE 3961. Assignment I. (1 cr; S-N only. Prereq–Admission to ECE co-op) Industrial work assignment in Electrical and Computer Engineering co-op program. Grade based on student’s written report of semester’s assignment, but deferred until completion of 4961.


EE 4235. Linear Control Systems Laboratory. (1 cr. Prereq–4231 or §4231; no cr or [EE or CompE] grad cr) Lab to accompany 4231.

EE 4237. State Space Control Laboratory. (1 cr. Prereq–4231 or §4233; no cr or [EE or CompE] grad students) Lab to accompany 4233.


EE 4363. Computer Architecture and Machine Organization. (4 cr. §5361, §4203, [CSci 5201. Prereq–2361] Introduction to computer architecture. Aspects of computer systems, such as pipelining, memory hierarchy, and input/output systems. Performance metrics. Examines each component of a complicated computer system.


EE 4505. Communications Systems Laboratory. (1 cr. Prereq–[4501 or §4501; no EE or CompE grad cr) Experiments in analysis/design of wired/wireless communication systems. Lab to accompany 4501.


EE 4701. Electric Drives. (3 cr. Prereq–3015) AC/DC electric-machine drives for position/rotation control. Integrated discussion of electric machines, power electronics, and control systems. Computer simulations. Applications in electric transportation, robotics, process control, and energy conservation.

EE 4703. Electric Drives Laboratory. (1 cr. Prereq–4701 or §4701) Laboratory to accompany 4701. Simulink-based simulations of electric machines/drives in applications such as energy conservation and motion control in robotics.

EE 4711. Introduction to Power System Analysis. (4 cr. Prereq–2011) AC power systems; analysis of large power system networks; mathematics and techniques of power flow analysis, short circuit analysis, and transient stability analysis. Use of a power system simulation program for design. Integral lab.


EE 4743. Switch-Mode Power Electronics Laboratory. (1 cr. Prereq–4741 or §4741) Laboratory to accompany 4741. PSim/Simulink-based simulations of converters, topologies, and control in switch-mode dc power supplies, motor drives for motion control, and inverters for interfacing renewable energy sources to utility grid.

EE 4960. Special Topics in Electrical and Computer Engineering. (1-4 cr. Prereq–[max 8 cr], Prereq–#) Topics that are not available in regular courses. Topics vary.

EE 4951W. Senior Design Project. (2 cr. Prereq–2015, 3115, 3501; attendance first day of class required) Team participation in formulating/solving open-ended design problems. Oral/written presentations.

EE 4961. Industrial Assignment I. (2 cr; S-N only. Prereq–3961, ECE co-op; no grad cr) Industrial work assignment in ECE co-op program. Grade based on student’s formal written report covering semester’s work.

EE 4962. Industrial Assignment II. (1 cr; S-N only. Prereq–4961, ECE co-op; A; no grad cr) Industrial work assignment in ECE co-op program. Formal written report covering semester’s work.

EE 4970. Directed Study. (1-3 cr. Prereq–Grad-cr or [may be repeated for cr]; A) Studies of approved projects, either theoretical or experimental.

EE 4981H. Senior Honors Project I. (2 cr. Prereq–ECE honors, Sr, #) Experience in research/design for electrical/computer engineering. Oral/written reports.

EE 4982V. Senior Honors Project II. (2 cr. Prereq–4981H, EE co-op, A; no grad cr) Experience in research/design for electrical/computer engineering. Oral/written reports.

EE 5121. Transistor Device Modeling for Circuit Simulation. (3 cr. Prereq–[3115, 3161]) or # Basics of MOS, bipolar theory. Evolution of popular device models from early SPICE models to current industry standards.
Course Descriptions


EE 5164. Semiconductor Properties and Devices II. (3 cr. Prereq–5163 or #) Principles and properties of semiconductor devices. Charge control in different FETs, transport modeling. Bipolar transistor models (Ebers-Moll, Gummel-Poon), heterostructure bipolar transistors, Special devices.

EE 5171. Microelectronic Fabrication. (4 cr. Prereq–IT sr or grad) Fabrication of microelectronic devices; silicon integrated circuits, GaAs devices; lithography, oxidation, diffusion; process integration of various technologies, including CMOS, double poly bipolar, and GaAs MIFESET.

EE 5173. Basic Microelectronics Laboratory. (1 cr. Prereq–5171 or §5171) Students fabricate a polysilicon gate, single-layer metal, NMOS chip, performing 90 percent of processing, including photolithography, diffusion, oxidation, and etching. In-process measurement results are compared with final electrical test results. Simple circuits are used to estimate technology performance.

EE 5231. Linear Systems and Optimal Control. (3 cr. Prereq–IT grad, 3015 or #) Properties and modeling of linear systems; linear quadratic and linear-quadratic-Gaussian regulators; maximum principle.

EE 5235. Robust Control System Design. (3 cr. Prereq–IT grad, 3015, 5231 or #) Development of control system design ideas; frequency response techniques in design of single-input/single-output (and MIMO) systems. Robust control concepts. CAD tools.


EE 5324. VLSI Design II. (3 cr. Prereq–5323 or #) CMOS arithmetic units, high-speed carry chains, fast CMOS multipliers. High-speed performance parallel shifters, CMOS memory cells, array structures, read/write circuits. Design for testability, including scan design and built-in self test. VLSI case studies.

EE 5327. VLSI Design Laboratory. (3 cr. Prereq–[4301, 5323 or §5323] or #) Complete design of an integrated circuit. Designs evaluated by computer simulation.


EE 5333. Analog Integrated Circuit Design. (3 cr. Prereq–[3115, grad student] or #) Fundamental circuits for analog signal processing. Design issues associated with MOS/BJT devices. Designing operational circuits. Selection topics (e.g., modeling of basic IC components, design of operational amplifier or comparator or analog sampled-data circuit filter).


EE 5381. Telecommunications Networks. (3 cr. Prereq–[4501, 5311] or #) Fundamental concepts of modern telecommunications networks, mathematical tools required for their performance analysis. Layered network architecture, point-to-point protocols/links, delay models, multiaccess communication/routing.

EE 5391. Computing With Neural Networks. (3 cr. Prereq–2025 or Stat 3021 or #) Neural networks as a computational model; connections to AI, statistics and model-based computation; associative memory and matrix computation; Hopfield networks; supervised networks for classification and prediction; unsupervised networks for data reduction; associative recognition and retrieval, optimization, time series prediction and knowledge extraction.


EE 5545. Real-Time Digital Signal Processing Laboratory. (2 cr. Prereq–4541) Lab: Real-time computation of digital signal processing (DSP) functions, including filtering, sample-rate change, and differential pulse code modulation; implementation on a current DSP chip. DSP chip architecture, assembly language, arithmetic; real-time processing issues; processor limitations; I/O handling.

EE 5549. Digital Signal Processing Structures for VLSI. (3 cr. Prereq–4541) Pipelining; parallel processing; fast convolution; FIR, rank-order, IIR, lattice, adaptive digital filters; scaling and roundoff noise; DCT; Viterbi coders; lossless coders, video compression.

EE 5551. Multiscale and Multirate Signal Processing. (3 cr. Prereq–4541, 5531, grad in IT major or #) Multirate discrete-time systems. Bases, frames, continuous wavelet transform; scaling equations; discrete wavelet transform; applications in signal and image processing.

EE 5581. Information Theory and Coding. (3 cr. Prereq–5531 or #) Source and channel models; codes for sources and channels. Entropy, mutual information, capacity, rate-distortion functions. Coding theorems.

EE 5585. Data Compression. (3 cr. Prereq–IT sr or grad or #) Source coding in digital communications and recording; codes for lossless compression; universal lossless codes; lossless image compression; scalar and vector quantizer design; loss source coding theory; differential coding, trellis codes, transform and subband coding; analysis/synthesis schemes.


EE 5602. RF/Microwave Circuit Design. (3 cr. Prereq–5601 or equiv) Transmission lines, network analysis concepts. CAD tools for passive/active designs. Diode based circuit designs (detectors, frequency multipliers, mixers). Transistor based circuit design (amplifiers, oscillators, mixer/doubler).


EE 5611. Plasma-Aided Manufacturing. (4 cr. §5611, §4541, Grad or upper div IT, ME 3321, §5332 or equiv) Manufacturing using plasma processes; plasma properties as a processing medium; plasma spraying, welding and microminiaturizing; process control and system design; industrial speakers, a cross-disciplinary experience between heat transfer design issues and manufacturing technology.

EE 5613. RF/Microwave Circuit Design Laboratory. (2 cr. Prereq–5601) Scattering parameters, planar lumped circuits, transmission lines, RF/microwave substrate materials, matching networks/oscillators, filters, combiners/dividers, equalizers. CIR tool.

Course Descriptions

English as a Second Language (ESL)
Institute of Linguistics, ESL, and Slavic Languages and Literatures
College of Liberal Arts

ESL 0010. TOEFL Preparation. (0 cr. [max 8 cr]; S-N only. Prereq-Native English speaker. See Minnesota English Center for override) Describes the format of the TOEFL test. Focuses on strategies for improving skills for each section of the test.

ESL 0020. Pronunciation Workshop. (0 cr [max 8 cr]; S-N only. Prereq—Native English speaker; see Minnesota English Center for override) Individual attention to specific areas of spoken language, including intonation, rhythm, and segmentals.

ESL 0040. Skills Enhancement. (0 cr [max 8 cr]; S-N only. Prereq—Native English speaker. See Minnesota English Center for override) Student will focus on specific areas of their English which need improvement.

ESL 0080. English Through Literature. (0 cr [max 8 cr]; S-N only. Prereq—Native English speaker. See Minnesota English Center for override) An advanced course designed for students who want further practice in reading, listening, speaking, and writing for non-academic purposes.

ESL 0090. English Through Music. (0 cr [max 8 cr]; S-N only. Prereq—Native English speaker. See Minnesota English Center for override) Student will learn English vocabulary and culture through folksongs and by looking at popular music in various decades.

ESL 0100. Topics in American Culture. (0 cr [max 6 cr]; S-N only. Prereq—Native English speaker. See Minnesota English Center for override) Students will learn about areas of U.S. culture such as American humor, religions, ethnic groups, lifestyles, and popular culture.

ESL 0111. Beginning Grammar. (0 cr [max 8 cr]; S-N only. Prereq—Native English speaker. See Minnesota English Center for override) Focuses on the ability to communicate in English in everyday situations. Listening and speaking are emphasized.

ESL 0121. Beginning Reading/Composition. (0 cr [max 16 cr]; S-N only. Prereq—Native English speaker. See Minnesota English Center for override) Introduces and reviews grammatical structures with attention to meaning, use, and form.

ESL 0131. Beginning Oral Skills. (0 cr [max 16 cr]; S-N only. Prereq—Native English speaker. See Minnesota English Center for override) Reading short passages of limited difficulty. Emphasizes main ideas, vocabulary, reading speed, skimming and scanning. Writing fundamentals, spelling, punctuation, paragraphing, and basic organization. Writing exercises and free writing.

ESL 0191. English Skills Enhancement. (0 cr [max 16 cr]; S-N only. Prereq—Native English speaker. See Minnesota English Center for override) Improving basic English language skills through work in computer/language lab. Focused activities for individual learners.

ESL 0193. Pronunciation. (0 cr [max 8 cr]; S-N only. Prereq—Native English speaker. See Minnesota English Center for override) Addresses important aspects of English pronunciation necessary to improve comprehensibility and reduce foreign-accents. Includes work on pronunciation; word, phrasal, and sentence stress; intonation; linking; thought groups; and rhythm.

For definitions of course numbers, symbols, and abbreviations, see page 300.
Course Descriptions

ESL 0200. Understanding American Universities. (0 cr [max 2 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Strategies for success in academic classes including vocabulary development, lecture comprehension, and textbook reading; application of listening skills and the reading of supporting unadapted material.

ESL 0211. High Beginning Grammar. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Reviews and adds to students’ skills with basic structures. Focuses on increasingly complex structures with attention to form, meaning, and use; practice of structures in controlled speaking and writing activities.

ESL 0221. High Beginning Reading/Composition. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Reviews and adds to students’ skills with basic structures. Focuses on increasingly complex structures with attention to form, meaning, and use; practice of structures in controlled speaking and writing activities.

ESL 0231. High Beginning Oral Skills. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Ability to communicate in English in everyday situations. Emphasis on using American English in a nonlecture format, as in television documentaries. How to write business letters in English. E-mail, using a variety of authentic materials.

ESL 0300. Computer Lab: Intro to Computer Basics. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Students will learn basic word processing.

ESL 0310. Computer Lab: Using the Internet for Language Learning. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Students will complete projects on email and the internet.

ESL 0311. Low Intermediate Grammar. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Reviews and adds to students’ skills with basic structures. Emphasizes increasingly complex structures with attention to form, meaning, and use; practice of structures in controlled speaking and writing situations.

ESL 0321. Low Intermediate Reading/Composition. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Reading for main ideas and supporting ideas with increased speed; vocabulary development; word formation, and use of dictionary; spelling; punctuation and paragraphing. Organization and writing as a process.

ESL 0331. Low Intermediate Oral Skills. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Practice in speaking in structured and semi-structured situations with special attention to basic regularities in pronunciation.

ESL 0400. Library and Research Skills. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Students will learn the basics of using the university library system for research purposes.

ESL 0411. Intermediate Grammar. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative speaker of English; see Minnesota English Center for override) Reviews and adds to students’ skills with basic structures. Emphasizes increasingly complex structures with attention to form, meaning, and use. Verb phrases; practice of structures in controlled speaking and writing activities.

ESL 0421. Intermediate Reading/Composition. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Reading for main ideas and supporting ideas with increased speed; vocabulary development through study of word formation and use of dictionary; Writing fundamentals; organization and writing as a process.

ESL 0431. Intermediate Oral Skills. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Develop fluency and accuracy; language for specific functions; communication strategies; standard forms of organization for academic lectures; understanding natural conversational speech.

ESL 0500. Community Service Learning. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Students will learn about and participate in community service projects.

ESL 0511. High Intermediate Grammar. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Reviews and adds to repertoire of structures with attention to form, meaning, and use; emphasizes verb and content word syntax of typical writing.

ESL 0521. High Intermediate Reading/Composition. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Reading unadapted as well as adapted passages; efficiency, vocabulary, drawing inferences, identifying point of view, using knowledge of organization to aid understanding, writing process, academic-style assignments.

ESL 0531. High Intermediate Oral Skills. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Develop fluency and accuracy in everyday situations and in academic situations; special attention to communication strategies; prepares students for academic lectures by introducing standard forms of organization and note-taking skills. Students also work on understanding and conversational speech using a variety of authentic materials.

ESL 0600. International Business Communication. (0 cr [max 4 cr]; S-N only. Prereq–Nonnative speaker of English; see Minnesota English Center for override) How to write business letters in English. E-mail, voice mail for business.

ESL 0611. Advanced Grammar. (0 cr [max 4 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Focuses on difficulties of grammar and on providing students with resources to work on them. Meaning, use and form are emphasized with increased emphasis on complex sentence patterns.

ESL 0621. Advanced Reading Composition: The Written Word. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Focusses on improving reading efficiency, including strategy development, as well as vocabulary skill building. Some focus on using reading to support academic writing.

ESL 0622. Advanced Reading/Composition: The Written Word. (0 cr [max 16 cr]; S-N only. Prereq–0621) Continuation of ESL 0621.

ESL 0631. Advanced Oral Skills. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative English speaker, override from Minnesota English Center) Emphasizes listening and speaking skills in addition to understanding of U.S. culture through interaction with American students. Attend a weekly seminar with American university students and visit local schools to make presentations about your home country. Pronunciation instruction will focus on individual needs.

ESL 0732. High Advanced Oral Skills. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative speaker of English; see Minnesota English Center for override) Emphasizes listening and speaking skills in addition to understanding of U.S. culture through interaction with American students. Attend a weekly seminar with American university students and visit local schools to make presentations about your home country. Pronunciation instruction will focus on individual needs.

ESL 0733. High Advanced Oral Skills. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative speaker of English; see Minnesota English Center for override) Emphasizes listening and speaking skills in addition to understanding of U.S. culture through interaction with American students. Attend a weekly seminar with American university students and visit local schools to make presentations about your home country. Pronunciation instruction will focus on individual needs.

ESL 0741. High Advanced Listening Comprehension. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker; see Minnesota English Center for override) Lecture comprehension with special attention to note taking, recognizing main ideas and support, and understanding relationship of ideas, implied information, and structure of speech; comprehension of information presented in a wide variety of authentic materials.

ESL 0751. High Advanced Speaking/Pronunciation. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker; see Minnesota English Center for override) Emphasizes use of spoken English in academic settings, including presentation skills and discussion skills; pronunciation focuses on individual needs of students.

ESL 0651. Advanced Speaking/Pronunciation. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Emphasizes the use of spoken English in academic settings as well as in conversation. Pronunciation focuses on individual needs.

ESL 0661. Advanced Reading. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Students will work on comprehending authentic texts of significant lengths. Develop strategies to apply in academic reading.

ESL 0671. Advanced Composition. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker. See Minnesota English Center for override) Skills needed at every stage of the writing process: finding a topic, determining an approach to the topic, planning and drafting a composition, revising, and editing. Suiting one’s writing to audience and topic, and looking at one’s own writing critically.

ESL 0700. Topics in the Media. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative speaker of English; see Minnesota English Center for override) News media as means of English improvement and as source of information and entertainment, as model for international news events via radio broadcasts, newspaper, and other news sources. Understanding American culture and developing listening/speaking skills.

ESL 0711. Grammar Through Writing. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative speaker of English; see Minnesota English Center for override) Focusses on production of grammatically sophisticated structures in writing. Students edit their assignments.

ESL 0712. Grammar Through Writing. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker of English; see Minnesota English Center for override) Production of grammatically sophisticated structures in writing. Students edit their assignments.

ESL 0713. Grammar Through Writing. (0 cr [max 8 cr]; S-N only. Prereq–Nonnative English speaker of English; see Minnesota English Center for override) Production of grammatically sophisticated structures in writing. Students edit their assignments.

ESL 0721. High Advanced Reading/Composition. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative speaker of English; see Minnesota English Center for override) Emphasizes reading for academic purposes. Focus on comprehension of scholarly reading selections and on increasing reading efficiency. Focus on writing process, academic-style assignments.

ESL 0731. High Advanced Oral Skills. (0 cr [max 16 cr]; S-N only. Prereq–Nonnative speaker of English; see Minnesota English Center for override) Emphasizes listening and speaking skills in addition to understanding of U.S. culture through interaction with American students. Attend a weekly seminar with American university students and visit local schools to make presentations about your home country. Pronunciation instruction will focus on individual needs.
ESL 0761. High Advanced Reading. (0 cr [max 8 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

Continued development of strategies to increase reading efficiency and comprehension; paraphrasing/summarizing text; evaluating and criticizing sources; understanding writer’s perspective.

ESL 0771. High Advanced Composition. (0 cr [max 8 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

Refining of skills needed in the writing process; refinement of use of complex grammatical structures; research to support writing.

ESL 0800. English for Science and Technology. (0 cr [max 2 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

English for formulating hypotheses, describing experiments, and presenting results; includes reading, writing, listening, and speaking activities based on scientific and technical English.

ESL 0810. SIELOP: Grammar. (0 cr; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

Form, function, meaning of English grammar.

ESL 0820. SIELOP: Reading. (0 cr [max 3 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

English language reading skills.

ESL 0830. SIELOP: Composition. (0 cr; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

English writing skills.

ESL 0840. SIELOP: Speaking/Pronunciation. (0 cr [max 3 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

English speaking, pronunciation skills.

ESL 0850. SIELOP: Listening. (0 cr; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

English listening skills.

ESL 0900. Topics in English as a Second Language. (0 cr [max 10 cr]; S-N only. Prereq-Nonnative English speaker; see Minnesota English Center for override)

Topics vary. See Class Schedule or One Stop.

ESL 0901. Topics in English as a Second Language. (0 cr [max 20 cr]; S-N only. Prereq-Nonnative English speaker; see Minnesota English Center for override)

Topics vary. See Class Schedule.

ESL 0902. Topics in English as a Second Language. (0 cr [max 30 cr]; S-N only. Prereq-Nonnative English speaker; see Minnesota English Center for override)

Topics vary. See Class Schedule.

ESL 0903. Topics in English as a Second Language. (0 cr [max 40 cr]; S-N only. Prereq-Nonnative English speaker; see Minnesota English Center for override)

Topics vary. See Class Schedule.

ESL 0911. Fundamentals in English as a Second Language. (0 cr [max 12 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

Basic knowledge/skills needed for daily communication in spoken English. Grammatical structures explained with reference to their uses in social situations. Pronunciation.

ESL 0912. Fundamentals in English as a Second Language. (0 cr [max 12 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

Basic knowledge/skills needed for daily communication in spoken English. Grammatical structures explained with reference to their uses in social situations. Pronunciation.

ESL 0931. Developing Fluency in English as a Second Language. (0 cr [max 20 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

Communication skills for social, academic, and professional purposes. Emphasizes listening/speaking. Content drawn from mass media.

ESL 0932. Developing Fluency in English as a Second Language. (0 cr [max 12 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

Communication skills for social, academic, and professional purposes. Emphasizes listening/speaking. Content drawn from mass media.

ESL 0933. Developing Fluency in English as a Second Language. (0 cr [max 6 cr]; S-N only. Prereq-Satisfactory score on EPT or TOEFL)

Communication skills for social, academic, and professional purposes. Emphasizes listening/speaking. Content drawn from mass media.

ESL 0937. International Business Communication. (0 cr [max 16 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

Oral communication in a business setting. English as used in international trade, finance, and marketing. Listening/speaking skills for business materials. E-mail, voice mail. Writing business letters.

ESL 0971. Advanced Academic Writing. (0 cr [max 8 cr]; S-N only. Prereq-Nonnative speaker of English; see Minnesota English Center for override)

Introduction to the use of library system and to types of writing required in graduate school courses. Developing/organizing ideas, drafting, revising/editing papers, writing essay exams.

ESL 0993. Directed Studies in English as a Second Language. (0 cr [max 10 cr]; S-N only. Prereq-Nonnative English speaker; see Minnesota English Center for override)

Directed study in English as a second language.

ESL 0994. Directed Studies in English as a Second Language. (0 cr [max 20 cr]; S-N only. Prereq-Nonnative English speaker; see Minnesota English Center for override)

Directed study in English as a second language.

ESL 0995. Directed Studies in English as a Second Language. (0 cr [max 30 cr]; S-N only. Prereq-Nonnative English speaker; see Minnesota English Center for override)

Directed study in English as a second language.

ESL 0996. Directed Studies in English as a Second Language. (0 cr [max 40 cr]; S-N only. Prereq-Nonnative English speaker; see Minnesota English Center for override)

Directed study in English as a second language.

English: Composition (EngC)

Department of English Language and Literature

College of Liberal Arts

EngC 1001. Preparation for University Writing. (4 cr. Prereq-Category 4 placement; some sections may be limited to ESL students)

Guided writing practice in prewriting, drafting, and revising, as well as grammar, sentence structure, and paragraphing. For students who are not fully prepared for academic writing. Weekly meetings with a tutor in the Student Writing Center required.

EngC 1011. University Writing and Critical Reading. (4 cr. Prereq-Category 4 placement; some sections may be limited to ESL students)

Critical reading/interpretation of selected texts. Research in various types of resources. Writing through several drafting steps. Finished writing is revised/edited to meet university-level standards of persuasiveness, precision, and correctness.

EngC 1012. University Writing and Critical Reading: Perspectives on Multiculturalism. (4 cr. Prereq-Category 2 or 3)

Critical reading/interpretation of selected texts, research in various types of resources, writing through several drafting steps. Finished writing is revised/edited to meet university-level standards of persuasiveness, precision, and correctness.

EngC 1013. University Writing and Critical Reading: Nature and the Environment. (4 cr. Prereq-Category 2 or 3)

Critical reading/interpretation of selected texts, research in various resources, writing through several drafting steps. Finished writing is revised/edited to meet university-level standards of persuasiveness, precision, and correctness.

EngC 1014. University Writing and Critical Reading: Contemporary Public Issues. (4 cr. Prereq-Category 2 or 3)

Critical reading/interpretation of selected texts, research in various resources, writing through several drafting steps. Finished writing is revised/edited to meet university-level standards of persuasiveness, precision, and correctness.

EngC 1014H. University Writing and Critical Reading: Contemporary Public Issues. (4 cr. Prereq-Category 2 or 3)

Critical reading/interpretation of selected texts, research in various resources, writing through several drafting steps. Finished writing is revised/edited to meet university-level standards of persuasiveness, precision, and correctness.

EngC 1015. University Writing and Critical Reading: Perspectives on Globalization. (4 cr. Prereq-Category 2 or 3)

Critical reading/interpretation of selected texts, research in various types of resources, including Internet. Writing through several drafting steps. Finished writing is revised/edited to meet university-level standards of persuasiveness, precision, and correctness.

For definitions of course numbers, symbols, and abbreviations, see page 300.
Course Descriptions

EngW 1104. Introduction to Literary Nonfiction Writing. (3 cr.)
Beginning instruction in the art of nonfiction writing. Discussion of student poems and contemporary poetry, ideas for generating material, and writing exercises both in and out of class.

EngW 3105. Advanced Poetry Writing. (4 cr. Prereq–EngW 1103 or 1104)
Exercises, experiments, assigned readings, discussion of student work.

EngW 3106. Advanced Literary Nonfiction Writing. (4 cr. Prereq–EngW 2104 or A)
Opportunity to explore new poetic possibilities and read widely in contemporary poetry/poetics.

EngW 1015. Written English for Non-Native Speakers. (3 cr. Prereq–EngW 1014)
Prereq–Completion of freshman writing requirement.

Course Schedule.

EngW 3106. Topics in Advanced Creative Writing. (4 cr. Prereq–#)
Might include work in more than one genre.

EngW 1102. Introduction to Poetry Writing. (3 cr.)
Beginning instruction in the art of poetry. Discussion of student poems and contemporary poetry, ideas for generating material, and writing exercises both in and out of class.

EngW 5106. Advanced Literary Nonfiction Writing. (4 cr. Prereq–A)
Advanced workshop for students with considerable experience in writing poetry. An opportunity to explore new poetic possibilities and to read widely in contemporary poetry and poetics.

EngW 5110. Topics in Advanced Fiction Writing. (4 cr. Prereq–A)
Special topics in fiction writing. Topics specified in Class Schedule.

EngW 5120. Topics in Advanced Poetry. (4 cr. Prereq–A)
Special topics in poetry writing. Topics specified in Class Schedule.

EngW 5130. Topics in Advanced Creative Writing. (4 cr. Prereq–A)
Special topics in essay writing (e.g., arts reviewing, writing about public affairs, writing in personal voice). Topics specified in Class Schedule.

EngW 5131. Reading as Writers. (4 cr. Prereq–Grad student)
Special topics in reading fiction, literary nonfiction, poetry. Topics specified in Class Schedule.

EngW 5501. Minnesota Writing Project Selective Institute. (1-3 cr [max 3 cr]; Prereq–Competitive selection for 20 educators [K-college])
Emphasizes participants’ teaching each other best practices in writing instruction. Participants attend a retreat before beginning.

EngW 5502. Screenwriting. (4 cr. Prereq–A or sr)

EngW 5503. Graduate Research Writing Practice for Non-Native Speakers of English. (3 cr. Prereq–Grad student)
Graduate-level writing techniques/formats for summaries, critiques, research, and abstracts. Persuasion, documentation, structure, grammar, vocabulary, field-specific requirements. Writing through several drafts, using mentor in specific field of study. Revising/editing to meet graduate standards. Discussions.

EngW 5504. Advanced Poetry Writing. (4 cr. Prereq–A)
Advanced workshop for graduate students with considerable experience in writing fiction.

EngW 5505. Advanced Poetry Writing. (4 cr. Prereq–A)
Advanced workshop for students with considerable experience in writing poetry. An opportunity to explore new poetic possibilities and to read widely in contemporary poetry and poetics.

EngW 5506. Literary Aspects of Journalism. (3 cr; A-F only)
Literary aspects of journalism as exemplified in and out of class.

EngW 5570. Minnesota Writing Project Directed Studies. (1-3 cr [max 3 cr]; A-F only)
Current theories of writing and writing pedagogy. Topics vary. Workshop.

EngW 5593. Directed Study in Writing. (1-4 cr [max 18 cr]; Prereq–A, A)
Projects in writing poetry, fiction, drama, and nonfiction, or study of ways to improve writing.
English: Literature (EngL)

Department of English Language and Literature
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EngL 1171. Story of King Arthur. (3 cr; A-F only) Arthurian literature, from earliest times to present. How the same story can accommodate many different systems of belief. Form and changing historical backgrounds.

EngL 1181V. Honors: Introduction to Shakespeare. (4 cr; A-F only §1181. Prereq—Honors) Survey of Shakespeare’s work, treating approximately 10 plays. Lecture.

EngL 1181W. Introduction to Shakespeare. (4 cr. §1182) Survey of Shakespeare’s work, treating approximately 10 plays. Lecture.


EngL 1401V. Honors: Introduction to “Third World” Literatures in English. (4 cr; A-F only §1401. Prereq—Honors) Diverse work produced in English outside the United States and Britain. Works represent different cultures, but treat concerns derived from a common post-colonial legacy.

EngL 1401W. Introduction to “Third World” Literatures in English. (4 cr. §1402) Diverse works produced in English outside the United States and Britain. Works represent different cultures, but treat concerns derived from common post-colonial legacy.


EngL 1601W. English Language and Society. (4 cr) Nontechnical understanding of systematic, dynamic, creative nature of human language. Emphasizes English language.

EngL 1701. Modern Fiction. (4 cr) Basic techniques for analyzing/understanding fiction. Readings from novels and short stories written in English-speaking countries and elsewhere (in translation). Introduction to fictional techniques such as point of view, fictional conventions, and some forms of experimentation.

EngL 1701H. Honors: Modern Fiction. (4 cr) Basic techniques for analyzing/understanding fiction. Readings from novels and short stories written in English-speaking countries and elsewhere (in translation). Introduction to fictional techniques such as point of view, fictional conventions, and some forms of experimentation.

EngL 1905. Topics: Freshman Seminar. (3 cr; A-F only. Prereq—Fr or max 30 cr) Topics specified in Class Schedule.

EngL 1910W. Topics: Freshman Seminar. (3 cr; A-F only. Prereq—Fr or max 36 cr) Topics specified in Class Schedule.

EngL 1930. General Topics in Literature. (3 cr; A-F only. Prereq—Fr) Topics determined by instructor.

EngL 3001V. Honors: Textual Interpretation, Analysis, and Investigation. (4 cr; A-F only §3001. Prereq—Honors; soph 1st term or higher) Training/practice in analyzing various literary forms. Emphasizes poetics, historical background, and documentation in literary papers. Introduction to major developments in contemporary criticism.

EngL 3001W. Textual Interpretation, Analysis, and Investigation. (4 cr; A-F only §3001V) Close/critical reading, placing literature in history/culture. Idea of multiple approaches to literary works. Analysis of various literary forms, including poetry.


EngL 3002H. Honors: Modern Literary Criticism and Theory. (3 cr; Prereq—CLA honors) Problems of interpretation/criticism. Questions of meaning, form, authority, literary history, social significance.

EngL 3003W. Historical Survey of British Literatures I. (4 cr) An introductory historical survey of British literature and culture from the Anglo-Saxon invasions through the end of the 18th century.

EngL 3004W. Historical Survey of British Literatures II. (4 cr) An introductory historical survey of British literature and culture in the 19th and 20th centuries. Includes Romantic, Victorian, and Modernist authors, such as Wordsworth, Keats, Tennyson, the Brontes, Austen, Dickens, Wilde, Yeats, Woolf, and Thomas.

EngL 3005W. Survey of American Literatures and Cultures I. (4 cr) Readings in American literature from first European contact through colonial times, and to the mid-19th century. Readings in several genres will include world-famous classics as well as the work of people of color and women. Attention to historical contexts.

EngL 3006W. Survey of American Literatures and Cultures II. (4 cr) Readings from the mid-19th to the mid-20th century, including the realists’ and regionalists’ response to the growth of industrial capitalism, Modernism in the 1920s, and the issues which united and divided the country throughout the 20th century.

EngL 3007. Shakespeare. (3 cr; A-F only §3007) Plays from all of Shakespeare’s periods, including at least A Midsummer Night’s Dream, Hamlet, the history plays, King Lear, Macbeth, The Tempest, Twelfth Night, Antony and Cleopatra, Othello, and The Winter’s Tale.

EngL 3010. Studies In Poetry. (3 cr [max 9 cr]) Special topics related to reading poetry in various interpretive contexts.

EngL 3010H. Studies In Poetry. (3 cr [max 9 cr]) Special topics related to reading poetry in various interpretive contexts.


EngL 3020H. Honors: Studies In Narrative. (3 cr; A-F only §3020. Prereq—Honors) Issues related to reading/understanding narrative in various interpretive contexts. Topics may include nineteenth-century English (American, Anglophone) novel; narrative; or techniques of the novel. Topics specified in Class Schedule.

EngL 3030. Studies in Drama. (3 cr [max 9 cr]) Topics may include English Renaissance tragedy, English Restoration and 18th century, or American drama by writers of color; single-author courses focused on writers such as Tennessee Williams and Eugene O’Neill, or issues and themes, such as gender and performance.

EngL 3030H. Studies in Drama. (3 cr [max 9 cr]) Topics may include English Renaissance tragedy; English Restoration and 18th century; American drama by writers of color; single-author courses focused on writers such as Tennessee Williams and Eugene O’Neill; issues/themes such as gender and performance.

EngL 3040. Studies in Film. (2-3 cr [max 9 cr]) Topics regarding film in a variety of interpretive contexts, from the range and historic development of American, English and Anglophone film. Recent examples: “American Film Genres,” “Film Noir,” “Chaplin and Hitchcock.” Topics and viewing times announced in Class Schedule.

EngL 3040H. Honors: Studies in Film. (3 cr [max 9 cr]) Topics regarding film in a variety of interpretive contexts, from the range and historic development of American, English, and Anglophone film. Recent examples: “American Film Genres,” “Film Noir,” “Chaplin and Hitchcock.” Topics and viewing times announced in Class Schedule.

EngL 3060. Studies in Literature and the Other Arts. (3 cr [max 9 cr]) Examines literature’s role in conjunction with other arts including music, the visual arts, dance, etc. Topics specified in Class Schedule.

EngL 3070. Studies in Literary and Cultural Modes. (3 cr [max 9 cr]) Modes of literary expression and representation that transcend conventional demarcations of genre and historical periods. Topics may include horror, romance, mystery, comedy, and satire.

EngL 3090. General Topics. (3 cr [max 9 cr]) Topics specified in Class Schedule.

EngL 3101. Survey of Medieval English Literature. (3 cr; A-F only) Major/representative Medieval English works, including Sir Gawain the Green Knight, Chaucer’s Canterbury Tales, Peers Plowman, Book of Margery Kempe, Julian of Norwich’s Revelations, and Malory’s Morte d’Arthur.
Engl. 3102. Chaucer, (3 cr; A-F only)
Major/representative works written by Chaucer, including The Canterbury Tales, Troilus and Criseyde, and the dream visions. Historical, intellectual, and cultural background of the poems. Language, poetic theory, form.

Engl. 3110. Medieval Literatures and Cultures, (3 cr [max 9 cr])
Major and representative works of the Middle Ages. Topics specified in the Class Schedule.

Engl. 3111. Survey of English Literature I, Transition, (3 cr; A-F only)
Historical survey of major figures, movements, and trends in English literature. Chaucer to Marvell, including Spenser, Shakespeare, and Donne.

Engl. 3112. Survey of English Literature II, Transition, (3 cr; A-F only)
Historical survey of major figures, movements, and trends in English literature. Milton to Johnson, including Dryden, Swift, and Pope.

Engl. 3113. Survey of English Literature III, Transition, (3 cr; A-F only)
Historical survey of major figures, movements, and trends in English literature. Blake to Yeats, including Wordsworth, Coleridge, Keats, Tennyson, and the Brownings.

Engl. 3115. Medieval and Renaissance Drama, (3 cr; A-F only)
Medieval/Renaissance drama in terms of performance. Performance history, enactments of scenes from cycle/morality plays, informal production of a morality play.

Engl. 3121. Tudor England: 16th-Century Literature and Culture, (3 cr §3121H)
Major/representative works of Renaissance (1485-1660). Typical authors: More, Sidney, Spenser, Donne, Milton.

Engl. 3121H. Tudor England: 16th-Century Literature and Culture, (3 cr)
Major/representative works of Renaissance (1485-1660). Typical authors: More, Sidney, Spenser, Donne, Milton.

Engl. 3122. Shakespeare II, (3 cr §3122H. Prereq–Honors or #)
Intensive study of two to four plays, exploration of less familiar plays or of other works including the Sonnets, performance as interpretation with comparative analysis of multiple performances of a play or plays, critical study of multiple-text plays.

Engl. 3123. Tudor England: 16th-Century Literature and Culture, (3 cr)

Engl. 3133. Stuart England: 17th-Century Literature and Culture, (3 cr)
Major/representative works of the Restoration and 18th century (1660-1798). Typical authors: Dryden, Pope, Swift, Johnson, Boswell, Fielding.

Engl. 3134. Milton and the Century of Revolution, (3 cr; A-F only)

Engl. 3141. The Restoration and the Eighteenth Century, (3 cr; A-F only)
Major/representative works of the Restoration and 18th century (1660-1789). Typical authors: Dryden, Behn, Swift, Pope, Fielding, Burney.

Engl. 3151. Romantic Literatures and Cultures, (3 cr)
British literature written between 1780 and 1830. Examine the concept of Romanticism, the effects of the French Revolution on literary production, and the role of the romantic artist.

Engl. 3161. Victorian Literatures and Cultures, (3 cr)
The literature of the Victorian period (1832-1901) in relation to its cultural and historical contexts. Typical authors include Tennyson, the Brownings, Dickens, Arnold, Hopkins, and the Brontes.

Engl. 3161H. Victorian Literatures and Cultures, (3 cr)
The literature of the Victorian period (1832-1901) in relation to its cultural and historical contexts. Typical authors include Tennyson, the Brownings, Dickens, Arnold, Hopkins, and the Brontes.

Engl. 3171. Modern British Literatures and Cultures, (3 cr)
Survey of principal writers, intellectual currents, conventions, genres and themes in Britain from 1950 to the present. Typically included are Beckett, Golding, Kingsley, Amis, Murdoch, Larkin, Hughes, Heaney, Lessing, Shaffer, Stoppard, Fowles, and Drabble.

Engl. 3180. Contemporary Literatures and Cultures, (3 cr [max 9 cr])
Examine issues related to the reading and understanding of British, American, and Anglophone fiction and poetry in a variety of interpretive contexts.

Engl. 3180H. Contemporary Literatures and Cultures, (3 cr [max 9 cr], Prereq–Honors)
Examine issues related to the reading and understanding of British, American, and Anglophone fiction and poetry in a variety of interpretive contexts.

Engl. 3211. American Poetry to 1900. (3 cr)
Poets from the Puritans to the end of the 19th century. The course examines the intellectual and cultural background of the poets, poetic theory, and form.

Engl. 3212. American Poetry from 1900. (3 cr)
Famous and lesser-known poems from the Modernist era, the time of Frost, HD, Pound, Eliot and the Harlem Renaissance. It attends to the intellectual and cultural background of the poets, poetic theory and form.

Engl. 3221. American Novel to 1900. (3 cr)
Novels from early Republic, through Hawthorne, Melville, and Stowe, to writers at end of 19th century (e.g., Howells, Twain, James, Chopin, Crane). Development of a national literature. Tension between realism and romance. Changing role of women as writers and as fictional characters.

Engl. 3222. American Novel From 1900. (3 cr)
Novels from early Republic, through Hawthorne, Melville, and Stowe, to writers at end of 19th century (e.g., Howells, Twain, James, Chopin, Crane). Development of a national literature. Tension between realism and romance. Changing role of women as writers and as fictional characters.

Engl. 3231. African American Drama, (3 cr)
Representative dramas from the 18th through 20th centuries. Topics include the staging of national identities, the aesthetics of modern and contemporary drama, and the production concerns of mainstream, regional, and community theaters.

Engl. 3231H. Honors: American Drama, (3 cr §3231H)
Representative dramas, from 18th through 20th centuries. Staging of national identities, aesthetics of modern/contemporary drama. Production concerns of mainstream, regional, and community theaters.

Engl. 3300. Multicultural American Literatures and Cultures, (3 cr [max 9 cr])
Literature of African American women writers explored in novels, short stories, essays, poetry, autobiographies, drama from 18th to late-20th century.

Engl. 3301G. Gay, Lesbian, Bisexual, and Transgender Literature, (3 cr [max 9 cr])
Explore literature and culture produced by and about gay, lesbian, bisexual, and transgendered people. Emphasis on the importance of examining materials usually falsified or ignored in earlier literary and cultural studies and how traditional accounts need to be revised in light of significant contributions of GLBT people to literature and culture.

Engl. 3350. Women Writers, (3 cr [max 9 cr])
Groups of writers in the 19th and/or 20th centuries. Will focus either on writers from a single country or be comparative in nature. The course will be organized thematically or according to topics of contemporary and theoretical interest.

Engl. 3350H. Honors: Women Writers, (3 cr §3350H. Prereq–CLA honors or A)
Groups of writers in 19th or 20th century. Either focuses on writers from a single country or is comparative. Organized thematically or according to topics of contemporary/theoretical interest.

Engl. 3400. Post-Colonial Literatures, (3 cr [max 9 cr])
Varied topics in post-Colonial literatures. Typical novelists include Chinua Achebe, Tsitsi Dangarembga, Faidia Faqir, Salman Rushdie; filmmaker Kidlat Tahnik; and “dub” poets Mutabaruka and Jean Binta Breeze.

Engl. 3501. Public Discourse: Reading Between and Beyond the Lines. (3 cr)
Public discourse in various geographic regions and historical periods. See Course Guide for specific course description.

Engl. 3505. Community Learning Internships I, II, III, IV (1 cr; A-F only)
Connections between literature/literacy, theory/practice, community work and academic study. Students work as interns in local community-based education projects. Interns meet with faculty and community representatives to reflect on daily work and practical relevance. Students receive initial training from Career and Community Learning Center and Minnesota Literacy Council, and orientations at community sites. Four hours weekly work at community site, readings, journal writing, monthly short papers.

Engl. 3506. Learning Internships II, III, IV (A-F only. Prereq–3505 in preceding semester or #)
Students work at a community site. In weekly meetings with faculty and community representatives, students explore relationships between their academic skills and community experiences. Social functions of literacy and liberal education in the United States. Eight hours weekly work at community site, readings in history/theory of literacy, written reflection exercises, design/execution of scholarly or educational project at community site.

Engl. 3591W. Introduction to African American Literature. (4 cr)
Afro-American autobiography, fiction, essay, poetry, drama, and folklore from the late 18th century to the present.

Engl. 3592. Introduction to Black Women Writers in the United States, (3 cr)
Literature of African American women writers explored in novels, short stories, essays, poetry, autobiographies, drama from 18th to late-20th century.

Engl. 3601W. Analysis of the English Language, (4 cr §EngC 3601W)

Engl. 3621W. Writing Beyond the Academy, (4 cr. Prereq–Completion of writing requirement, 60 cr)
Internship. Analyses of writing styles, genres, and rhetorical contexts outside the academy.

Engl. 3711. Literary Magazine Production and History. (4 cr)
Literary magazine production and history.
Course Descriptions

Engl 3713. Editing for Publication. (4 cr; §3641) Practice professional editing of various kinds of texts (e.g., scholarly manuscripts, books, copy editing to editing levels, from substantive revision to copyediting. Computer-mediated editorial practices.


Engl 3753W. Writing Beyond the Academy. (3 cr; §3621. Prereq–Completion of writing requirement, 60 cr) Internship. Analyses of writing styles, genres, and rhetorical contexts outside the academy.

Engl 3870. Figures in English and North American Literature. (3 cr [max 9 cr]) Topics specified in the Class Schedule.

Engl 3881. London Seminar. (3 cr; Prereq–Completion of 3xxx level composition requirement, A) Broad topic of literary investigation crossing and integrating several areas of study. Team taught. “Literature in London” program course.


Engl 3980. Directed Instruction. (1-6 cr. Prereq–∆, A) Directed study arranged between student and advising faculty member.


Engl 4003. History of Literary Theory. (3 cr; A-F only) How thinkers from classical to modern times posed/answered questions about language (how words mean), audience (to whom they mean), and the literary (how literary writing differs from other forms of writing). Works by Plato, Aristotle, Augustine, Christine de Pizan, Dante, Sidney, Behn, Wordsworth, Shelley, and Woolf.

Engl 4041. Old Age in Film and Literature. (3 cr; A-F only) How/why subject of old age is focus of a selection of primarily modern verbal/visual texts (fiction, non-fiction, philosophical, sociological, and psychological perspectives. Ways in which varied experiences of old age have as much to do with culture as with biology.

Engl 4152. Nineteenth Century British Novel. (3 cr; A-F only) British novel during the century in which it became widely recognized as a major vehicle for cultural expression. Possible topics include the relation of novel to contemporary historical concerns: rise of British empire, developments in science, and changing roles for women; formal challenges of the novel; definition of realism.

Engl 4153. Nineteenth-Century British Poetry. (3 cr; A-F only) Poetry written in Britain during 19th century. Possible authors include Wordsworth, Byron, Hemans, Tennison, Robert and Elizabeth Browning, D. G. and Christina Rossetti, Swinburne, and Hopkins.

Engl 4232. American Drama by Writers of Color. (3 cr; A-F only) Selected works by Asian American, African American, American Indian, Latino, and Chicanx playwrights. How racial/ethnic differences are integral to shaping different visions of American drama. History of minority/theater, politics of casting, mainstreaming of minority playwrights.

Engl 4233. Modern and Contemporary Drama. (3 cr; A-F only) Works written for theater in 19th/20th century. Emphasizes how major aesthetic forms of modern drama (the well-made play, realism, expressionism, symbolism, epic theater, absurdism) presented not just distinctive theatrical styles, but also new ways of “seeing” for the theatrical spectator. How social differences, as informed by gender, class, and race, inform content/presentation.

Engl 4311. Asian American Literature and Drama. (3 cr; A-F only) Literary/dramatic works by Asian American writers. Historical past of Asian America through perspective of writers such as Sui Sin Far and Carlos Bulosan. Contemporary artists such as Frank Chin, Maxine Hong Kingston, David Henry Hwang, and Han Ong. Political/historical background of Asian American artists, their aesthetic choices.

Engl 4402W. Gender and the English Language. (4 cr; §3602) Connections between gender and other social factors that influence history/future of English language. Race, ethnicity, class, regional/national variation, religion, technology, gender theories as they relate to social issues, texts, and discourse practices.


Engl 4405W. Social Variation in American English. (4 cr; §3605W) Description/analysis of language variation from sociohistorical perspective in the United States and the Caribbean. Social history of migrations (voluntary, enforced) leading to development of regional/rural dialects, pidgin, creoles, and urban varieties.

Engl 4612. Old English I. (3 cr) Introduction to the language through 1150 A.D. Culture of Anglo-Saxons. Selected readings in prose/poetry.


Engl 4721. Electronic Text. (3 cr; §3632, §5632) Status/function of text, related questions as framed by electronic text.


Engl 5001. Introduction to Methods in Literary Studies. (3 cr; Prereq–Grad student) End/methods of literary research, including professional literary criticism, analytical bibliography, and textual criticism.

Engl 5002. Introduction to Literary and Cultural Theory. (3 cr; Prereq–Grad student) Approaches to general/theoretical problems of literary history/gener.

Engl 5030. Readings in Drama. (3 cr [max 9 cr]. §5330. Prereq–Grad student or A) Wide reading in literature of a given period or subject. Prepares students for work in other courses/seminars. Relevant scholarship/criticism. Topics specified in Class Schedule.


Engl 5120. Readings in Early Modern Literature and Culture. (3 cr [max 9 cr]. Prereq–Grad student or A) Topical readings in early modern poetry, prose, fiction, and drama. Relevant scholarship or criticism. Preparation for work in other courses or seminars.

Engl 5121. Readings in Early Modern Literature and Culture. (3 cr [max 9 cr]. §5220. Prereq–Grad student or A) Topical readings in early modern poetry, prose, fiction, and drama. Attention to relevant scholarship or criticism. Preparation for work in other courses or seminars.

Engl 5150. Readings in 19th-Century Literature and Culture. (3 cr [max 9 cr]. §5250. Prereq–Grad student or A) Topics may include British Romantic or Victorian literatures, American literature, important writers from a particular literary school, a genre (e.g., the novel). Readings.

Engl 5160. Readings in 18th Century Literature and Culture. (3 cr [max 9 cr]. Prereq–Grad student or A) Literature written in English, 1660-1798. Topics may include British literature of Reformation and 18th century, 18-century American literature, a genre (e.g., 18th-century novel).

Engl 5170. Readings in 20th Century Literature and Culture. (3 cr [max 9 cr]. §5320. Prereq–Grad student or A) British, Irish, or American literatures, or topics involving literatures of two nations. Focuses either on a few important writers from a particular literary school or on a genre (e.g., drama). Topics specified in Class Schedule.


Engl 5200. Readings in American Literature. (3 cr [max 9 cr]. §5120. Prereq–Grad student or A) General background/preparation for advanced graduate study. Readings cover either a wide historical range (e.g., 19th century), a genre (e.g., the novel), or a major literary movement (e.g., Modernism).


For definitions of course numbers, symbols, and abbreviations, see page 300.
Course Descriptions

EngL 5593. The Afro-American Novel. (3 cr) Contextual readings of 19th-/20th-century black novelists, including Cheston, Harston, Wright, Baldwin, Petry, Morrison, and Reed.

EngL 5597. Harlem Renaissance. (3 cr; AFro 5597) Multidisciplinary review of Jazz Age's Harlem Renaissance: literature, popular culture, visual arts, political journalism, major black/white figures.

EngL 5602. Gender and the English Language. (3 cr; Prereq-Grad student or #) Introduction to features of English that are gender-marked or gender-biased. Connections between language theory and social structures, including class and ethnicity. Patterns of women's/men's speech in specific social contexts. Gender and writing. Sociolinguistics and sexual orientation.

EngL 5603. World Englishes. (3 cr; Prereq-Grad student or #) Historical background, psychosocial significance, and linguistic characteristics of diverging varieties of English spoken around the world, especially in postcolonial contexts (Caribbean, Africa, Asia). Development of local standards/vernaculars. Sociolinguistic methods of analysis.

EngL 5605. Social Variation in American English. (3 cr; Prereq-Grad student or #) Descriptive and analytic language variation from sociolinguistic perspective in the United States and the Caribbean. Social history of voluntary/ enforced migrations leading to development of regional/urban dialects, pidgins, creoles, and urban varieties.

EngL 5612. Old English I. (3 cr; §5612) Prereq-Grad student or #) Introduction to the language through A.D. 1150. Anglo-Saxon culture. Selected readings in prose/poetry. Reading of Beowulf.


EngL 5622. Modern Irish Language II. (5 cr; Prereq- or sr grad student or #) Grammatical structures of modern Irish dialect. Development of oral/written language skills: vocabulary, manipulation of grammatical structures, speaking, listening, reading, writing. Modern Gaelic culture.

EngL 5630. Theories of Writing and Writing Instruction. (3 cr; Prereq-Grad student or #) Introduction to major theories that inform teaching of writing in college and upper-level high school curriculums. Topics specified in Class Schedule.

EngL 5630. Minnesota Writing Project: Directed Studies. (1-3 cr; max 30 cr; Prereq- Workshop) Theories of writing and writing pedagogy. Writing for publication. Research topics in applied literacy.

EngL 5711. Introduction to Editing. (4 cr; §5401) Editor-writer relationship, manuscript reading, author query/style. Some discussion of copy editing. Students develop editing skills by working on varied writing samples.

EngL 5712. Advanced Editing. (4 cr; §5402, Prereq-5401 or §5711, A) Editing long text. Fiction, children's literature, translations, indexes. Workshops/seminar.

EngL 5742. Theories of Writing and Instruction. (3 cr; §5830) Prereq-Grad student or #) Introduction to major theories that inform teaching of writing in college and upper-level high school curriculums. Topics specified in Class Schedule.

EngL 5743. History of Rhetoric and Writing. (3 cr; §5631) Prereq-Grad student or #) Assumptions of classical/contemporary rhetorical theory, especially as they influence interdisciplinary field of composition studies.

EngL 5790. Topics in Rhetoric, Composition, and Language. (3 cr; §5560) Prereq-Grad student or #) Topics specified in Class Schedule.

EngL 5800. Practicum in the Teaching of English. (2 cr; 5-N only; Prereq-Grad student or #) Discussion of teaching practice in recitation, lecture, small- groups, tutoring, individual conferences, and evaluation of writing/editing. Emphasizes theory informing effective course design/teaching for different disciplinary goals. See Class Schedule.

EngL 5805. Writing for Publication. (3 cr; Prereq-Grad student in Eng or #) Conference presentations, book reviews, revision of seminar papers for journal publication, and preparation of a scholarly monograph. Style, goals, and politics of journal and university press editors/readers. Electronic publication. Professional concerns.

EngL 5992. Directed Readings, Study, or Research. (1-15 cr; max 15 cr; Prereq- #, L) Entomology (Ent)

Department of Entomology

College of Agricultural, Food, and Environmental Sciences

Ent 3001. Insects and Insect Management. (3 cr; Prereq-Grad student or #) Principal orders of insects/arachnids. Introduction to structure, physiology, population dynamics, and management. Lecture/lab. Meets in weeks 1-4.


Ent 4015. Ornamentals and Turf Entomology. (3 cr; Prereq-3005 or #) Diagnosis and management of insect pests in landscape plants. Emphasis on the principles of biological control, biorational pesticides, and integrated pest management.

Ent 4021. Honey Bees and Insect Societies. (3 cr; Prereq- Biol 1009 or #) Natural history, identification, and behavior of honey bees and other social insects. Evolution of social behavior, pheromones and communication, organization and division of labor, social parasitism. Lab with honey bee management and maintenance of other social bees for pollination.

Ent 4022. Honey Bee Management. (1 cr; Prereq-4021 recommended, Biol 1009 or #) Field course for students interested in honey bee management and maintenance of other bee pollinators. Work with live bee colonies and participate in field research problems related to honey bee behavior and management.

Ent 4096. Professional Experience Program: Internship. (3 cr; 3-N only; Prereq- COAFES Career Services before registering; UC only) Professional experience in entomology farms or government agencies through supervised practical experience; ev evative reports and consultations with faculty advisers and employers.

Ent 4231. Insect Behavior. (3 cr; A-F only. Prereq- Biol 1009 or equiv or #; §5005 or EEB 3111) Behavior of social insects. Modes of perception, ways in which stimuli are translated into behavior. Genetic basis of behavior. Behavioral traits with Mendelian and more complex modes of inheritance. Natural history of insect behavior. Emphasizes how evolution has shaped diversity of behaviors. Movement/dispersal, feeding, defense/ escape, mating/reproduction, sociality. Case studies.

Ent 4251. Forest and Shade Tree Entomology. (3 cr) Biology, ecology, population management of forest/ shade tree insects. Emphasis on predisposing factors/ integrated management. Lecture/lab. Required Saturday field trip on second weekend of semester.

Ent 4281. Veterinary Entomology. (3 cr; A-F only) Biology/management of insects, mites, ticks that affect livestock, poultry, companion animals. Emphasizes problem-oriented, biotic, and evolutionary mechanisms.

Ent 5011. Insect Structure and Function. (4 cr; A-F only. Prereq-3005 or #) Comparative study of insect structures/functions from evolutionary perspective. Introduction to physiology of digestion, respiration, other organ systems.

Ent 5021. Insect Taxonomy and Phylogeny. (4 cr; Prereq-3001 or equiv) Identification of families of adult insects; evolution and classification of insects; techniques of collecting and curating insects; principles of phylogeny reconstruction.

Ent 5031. Insect Physiology. (2 cr; A-F only. Prereq-5011, biochem course or #) Essential processes of insects. Nerve and muscle mechanisms, energy metabolism, respiration, nutrition and digestion, excretion, regulation and interactions of processes, sensory mechanisms, and behavior. Reproductive behavior, embryology, and postembryonic development of insects.

Ent 5041. Insect Ecology. (3 cr; Prereq-Biol 5041 or EEB 5122 or #; offered fall 1998 and alt yrs) Synthetic analysis of the causes of insect diversity and of fluctuations in insect abundance. Focus on abiotic, biotic, and evolutionary mechanisms influencing insect populations and communities.


Ent 5121. Applied Experimental Design. (4 cr; Prereq-Stat 5021 or equiv or #) Principles of sampling methodologies, experimental design, and statistical analyses. Methodologies and procedures in generating scientific hypotheses. Organizing, initiating, conducting, and analyzing scientific experiments using experimental designs and statistical procedures. Offered with Agro 5121.
Ent 5211. Insect Pest Management. (3 cr. Prereq–3005 or #) Prevention or suppression of injurious insects by integrating multiple control tactics, e.g., chemical, biological, cultural. Strategies to optimize the dynamic integration of control methodologies in context of their economic, environmental, and social consequences.

Ent 5241. Ecological Risk Assessment. (3 cr. Prereq–#) Evaluating current/potential impact of physical, chemical, biological agents on ecosystems. Identifying ecological stressors, assessing level of exposure, measuring ecological responses, communicating/managerial risks. Class participation, two reaction papers, final exam, small-group project.


Ent 5321. Ecology of Agricultural Systems. (3 cr; A-F only. JrAgro 5321. Prereq–[J3xx or above] course in [Agro or Arsc or Hort], [J3xx or above] course in [Ent or PpA or SoIl] or #) Ecological approach to problems in agricultural systems. Formal methodologies of systems inquiry are developed/applied.

Ent 5341. Biological Control of Insects and Weeds. (3-4 cr; A-F only. Prereq–3001, Biol 1009, EEB 3001 or grad) Biological control of arthropod pests and weeds. Analysis of relevant ecological theory and case studies; biological control agents. Lab includes natural enemy identification, short experiments, and computer exercises.


Ent 5361. Aquatic Insects. (4 cr; A-F only. Prereq–#) Taxonomy, natural history of aquatic insects including their importance in aquatic ecology, water resource management, recreation, and conservation. Emphasizes family-level identification of immatures/adults. Field trips scheduled to local aquatic habitats. A collection is required.

Ent 5371. Principles of Systematics. (3 cr. Prereq–#; offered alt yrs) Theoretical/practical procedures of biological systematics. Phylogeny reconstruction, including computer assisted analyses, morphological/molecular approaches, species concepts, speciation, comparative methods, classification, historical biogeography, nomenclature. Use/value of museums.

Ent 5381. Lepidopterology. (2-3 cr. Prereq–Ent course or #; one course in [ecology and genetics recommended] Overview of Lepidoptera with emphasis on processes and phenomena such as polyphenism, mimicry, and individual quality that are well demonstrated by this insect order.


Ent 5900. Basic Entomology. (1-6 cr. Prereq–#) For graduate students who need to make up certain deficiencies in their biological science background.

Ent 5910. Special Problems in Entomology. (1-6 cr [max 10 cr]. Prereq–#) Individual field, lab, or library studies in various aspects of entomology.

Ent 5920. Special Lectures in Entomology. (1-3 cr) Lectures or labs in special fields of entomological research. Given by visiting scholar or regular staff member.

Environment and Natural Resources (ENR)

College of Natural Resources

ENR 1001. Orientation/Information Systems. (2 cr; A-F only) Course planning for ENR majors, natural resource careers, liberal education requirements, internships, summer jobs. Mentoring/utilizing alumni contacts. Technical tools in the workplace, lab equipment, software, getting around GUMs, navigating the Internet, preparing documents. Making spreadsheet calculations. Using Lumina and periodical indexes.


ENR 1480. Topics in Natural Resources. (1-4 cr [max 6 cr]. Prereq–Lower div) Lectures by visiting scholar or regular staff member. Topics specified in Class Schedule.

ENR 1901. Freshman Seminar. (1-3 cr. Prereq–Fr) In-depth study of issues/topics related to natural resources and the environment. Topics vary and are announced each semester.

ENR 1905. Freshmen Seminar. (1-3 cr. Prereq–Fr) In-depth study of issues/topics related to natural resources and the environment. Topics vary and are announced each semester.


ENR 3000. Colloquium: Environment and Natural Resources. (1 cr [max 6 cr]; A-F only) Lectures from experts. Readings, discussions of current environmental topics/issues. Topics vary, see Class Schedule.

ENR 3001. Treaty Rights and Natural Resources. (3 cr; A-F only) Lectures, class discussion about nature of treaty rights reserved by indigenous Americans with respect to utilization of natural resources. Emphasizes Midwest issues. Web-assisted course.


ENR 3031. Applied Global Positioning Systems for Geographic Information Systems. (2 cr; A-F only. Prereq–Intro GIS course, [jr or sr]) GPS principles, operations, techniques to improve accuracy. Datum, projections, and coordinate systems. Differential correction, accuracy assessments discussed/applied in lab exercises. Code/correlation phase GPS used in exercises. GPS handheld units, PDA based ArcPad/GPS equipment. Transferring field data to/from desktop systems, integrating GPS data with GIS.

ENR 3051. Experience and Training in a Field Setting. (1-3 cr; A-F only. Prereq–#) Students give oral presentation on an aspect of work/internship experience and produce a structured paper/project on topic related to their experience. Topic is agreed upon in consultation with a faculty adviser.

ENR 3101. Conservation of Plant Biodiversity. (3 cr; A-F only. Prereq–Biol 1001 or Biol 1009) Introduction to principles underlying assessment/conservation of plant biodiversity at individual, population, and community levels. Case studies in management of biodiversity to restore/maintain ecosystem function. Issues such as genetics, timber harvesting, invasive species, plant reproduction.


ENR 3202W. Environmental Conflict Management, Leadership, and Planning. (3 cr; A-F only) Negotiation of natural resource management issues. Use of collaborative planning. Case study approach to conflict management, strategic planning, and building leadership qualities. Emphasizes analytical concepts, techniques, and skills.


ENR 3207. Emerging Issues in Tropical Agriculture and Forestry: Costa Rica. (3 cr. Prereq–[Fr or #]) Experiential learning through field trips. From conventional to organic bird-friendly coffee production/marketing to sustainable management of high/lower-tropical forest and biodiversity. Lectures, seminars, labs field work, written project. A travel short course offered thru CATIE/UofM.

ENR 3241W. Natural Resource and Environmental Policy: History, Creation, and Implementation. (3 cr) Basic concepts of political/administrative processes important to natural resource policy and program development. Case study approach to policy/legislative process, participants in policy development, and public programs. Federal/state laws/regulations, international issues.

ENR 3245. Sustainable Land Use Planning and Policy. (3 cr; A-F only. Prereq—All lower div RAM reqs or #) Overview of policies that affect recreation at local, state, and federal levels. Landscape-level planning. Collaborative relationships as means to implement sustainable natural/social policy. Class project involves all aspects of implementing recreation policy, from public meetings to hands-on evaluation of options.

ENR 3251. Natural Resources in Sustainable International Development. (3 cr; A-F only) Interannual perspectives on resource use in developing countries. Integration of natural resource issues with social, economic, and policy considerations. Overviews of agriculture, forestry, agroforestry, non-timber forest products, water resources, certification, and development issues. Latin American case studies.


ENR 3480. Topics in Natural Resources. (1-4 cr [max 6 cr]) Lectures by visiting scholar or regular staff member. Topics specified in Class Schedule.


ENR 3703. Agroforestry in Watershed Management. (3 cr) Biological, physical, and environmental attributes of agroforestry as pertains to watershed management. Coupling production with watershed protection benefits. Implications for policy, economics, and human dimensions in sustainable development. Examples, case studies from N America and from developing countries.


ENR 4135W. Problem Solving and Planning in Natural Resources. (4 cr; A-F only. Prereq—ENR graduating sr) Applying problem solving tools/skills in policy, planning, and managerial situations. Students work with “real world” clients, produce publishable technical report, and present their results in a professional public forum.

ENR 4200H. Honors Seminar. (1 cr; A-F only. Prereq—ENR upper div honors, #) Topics presented by faculty, students, guest speakers. Lecture/discussion.

ENR 4293. Directed Study. (1-5 cr [max 12 cr], Prereq—#) Student selects and conducts a study of or project on a topic of personal interest in consultation with faculty member. The project documented by initial proposal and reports of accomplishment.

ENR 4295W. GIS in Environmental Science and Management. (4 cr; A-F only. Prereq—ENR 3131 or #) Application of spatial data inventory/analysis in complex environmental planning problems. Spatial data collection, database development methods including GPS, DLG, TIGER, NWI data, spatial analysis. Topics identified by non-University partners.

ENR 4801H. Honors Research. (2 cr; A-F only. Prereq—ENR upper div honors, #) Independent research project supervised by faculty member.

ENR 4802H. Honors Research. (2 cr; A-F only. Prereq—ENR upper div honors, #) Completion of honors thesis. Oral report.


ENR 5000. Colloquium: Environment and Natural Resources. (1 cr [max 6 cr]; A-F only) Lectures from experts, readings, discussions of current environmental topics/issues. Topics vary, see Class Schedule.

ENR 5001. Treaty Rights and Natural Resources. (3 cr [max 6 cr]; A-F only. Prereq—Grad student or #) Readings, class discussion about treaty rights reserved by indigenous Americans with respect to use of natural resources. Emphasizes Midwest issues. Web-assisted course.

ENR 5002. Colloquium: Restoration of Stream Ecosystems. (1 cr) Key concepts/techniques. Overview of stream habitat restoration. Relationship of restoration to natural stream systems, planning, research, watershed groups, interagency coordination, and management decision process.


ENR 5031. Applied Global Positioning Systems for Geographic Information Systems. (2 cr; A-F only. Prereq—Grad student or #) GPS principles, operations, techniques to improve accuracy. Datum, projections, and coordinate systems. Differential correction, accuracy assessments discussed/applied in lab exercises. Code/carrier phase GPS used in exercises. GPS handheld units, PDA based ArcPad/GPS equipment. Transferring field data to/from desktop systems, integrating GPS data with GIS.

ENR 5061. Water Quality and Natural Resources. (3 cr. Prereq—Grad student or #) Overview of policies, parameters, and decision making for managing surface/groundwater resources in Minnesota and globally. Biophysical/human side of water management. Wetlands, exotic species, heavy metal deposition. Cultural, political, and societal dimensions. Case studies, discussions, problem-solving, debates, projects.

ENR 5101. Conservation of Plant Biodiversity. (3 cr; A-F only. Prereq—Grad student or #) Introduction to principles underlying assessment/conservation of plant biodiversity at individual, population, and community levels. Case studies in management of biodiversity to restore or maintain ecosystem function. Genets, timber harvesting, invasive species, plant reproduction.


ENR 5195. Problem Solving and Planning in Natural Resources. (4 cr; A-F only. Prereq—Grad student or #) Applying problem solving tools/skills in policy, planning, and managerial situations. Students work with ‘real world’ client to produce publishable technical report, present results in professional public forums.

ENR 5202. Environmental Conflict Management, Leadership, and Planning. (3 cr; A-F only. Prereq—Grad student or #) Negotiation of natural resource management issues. Use of collaborative planning. Case study approach to conflict management, strategic planning, and building leadership qualities. Emphasizes analytical concepts, techniques, and skills.

ENR 5207. Emerging Issues in Tropical Agriculture and Forestry: Costa Rica. (3 cr. Prereq—Grad student, #) Experiential learning through field trips. From conventional to organic bird-friendly coffee production/marketing. Sustainable management of high/low-land tropical forests and of biodiversity. Lectures, seminars, labs field work, written project. Offered through CA TIE/U of M.

ENR 5211. Survey, Measurement, and Modeling for Environmental Analysis. (3 cr. Prereq—Grad student or #) Introduction to survey, measurement, and modeling concepts/methods for study of natural resources and environmental issues. Emphasizes survey design for data collection, estimation, and analysis for issues encompassing land, water, air, vegetation, animal, soil, and human/social variables.

ENR 5241. Natural Resource and Environmental Policy: History, Creation, and Implementation. (3 cr. Prereq—Grad student or #) Basic concepts of political/administrative processes important to natural resource policy and program development. Case study approach to policy/legislative process, participants in policy development, and public programs. Federal/state laws/regulations, international issues.

ENR 5245. Sustainable Land Use Planning and Policy. (3 cr; A-F only. Prereq—Grad student or #) Overview of policies that affect recreation at local, state, and federal levels. Landscape-level planning. Collaborative relationships as means to implement sustainable natural/social policy. Class project involves all aspects of implementing recreation policy, from public meetings to hands-on evaluation of options.
Environmental Science (ES)

College of Agricultural, Food and Environmental Sciences

ES 1011. Issues in the Environment. (3 cr)
Insight and analysis of environmentally stressed situations. Modes of avoiding and redressing pollution in the context of cultural and social systems and customs. Review current environmental issues through various media presentations by faculty and invited speakers.

ES 1051. Introduction to Environmental Science. (3 cr)
Physical, chemical, and biological principles that shape our environment. Interactions between biological and physical components of the Earth system. Current issues related to air/water pollution, climate change, and influences of human activities on the environment.

ES 1128. Seminar: Environmental Science Orientation. (1 cr; S-N only)
Orientation to University facilities, opportunities in environmental science, study skills, career planning, environmental topics.

ES 1245. The Atmosphere. (4 cr; A-F only)
Basic physical, chemical, and biological processes that drive changes in Earth’s weather/climate. Radiation and energy exchange, greenhouse effect, stratospheric ozone depletion, severe weather hazards, general circulation of atmosphere. Climate teleconnections, including El Nino. Impacts of human activities on climate. Weekly field/computer labs investigate how weather/climate data are measured, analyzed, and interpreted. All lecture and lab material are made available on the course Web site.

ES 3128. Seminar: Environmental Science. (1 cr; S-N only)
Students analyze environmental topics presented by guest speakers. Job opportunities in environmental science. Resume writing, interviewing skills.

ES 3211. Environmental Physics. (4 cr; A-F only. Prereq—Phys 1101)
Concepts/principles of classic/modern physics applied to environmental problems arising from interaction between humans and the natural environment. Forms of pollution (e.g., land, water, air). Transport mechanisms. Anthropogenic greenhouse gas emissions. Global climate change. Social issues related to environmental problems.

ES 3221. Soil Conservation and Water Quality Impacts. (3 cr; Prereq—1125 or 2125 or #)

ES 3612W. Soil and Environmental Biology. (3 cr. Prereq—2125 recommended, Biol 1009 or equiv, Chem 1021 or equiv; Math 1271, Phys 1101, [upper div or grad student] or #)

ES 4021W. Environmental Impact Statements. (3 cr. Prereq—AgEc 4611 or #, [jr or sr], 16 cr of science)
Roles of governmental agencies, consultants, and private citizens in EIS process. Students read EIS/EAW, analyze their content/scope, and prepare an EAW and an EIS according to Minnesota EQB guidelines.

ES 4093. Directed Study. (1-7 cr [max 20 cr]. Prereq—#)
Research, readings, and instruction.

ES 4094. Directed Research. (1-7 cr [max 7 cr]. Prereq—#)
Research under the direction of department faculty.

ES 4096. Professional Experience Program: Internship. (0-3 cr; max 6 cr. Prereq—COAFES undergrad, # complete internship contract available in COAFES Career Services before registering; UC only)
Both an oral and written report is done based on a paid or volunteered work position, or other field experience.

ES 4128. Senior Seminar: Environmental Science. (1 cr; S-N only)
Students analyze environmental topics presented by guest speakers. Job opportunities in environmental science. Resume writing, interviewing skills.

ES 4216. Contaminant Hydrology. (3 cr; A-F only)
Principles of contaminant transport in percolate solution and in overland flow. Hydrologic cycle, percolation/runoff processes, contaminant transport, leachate sampling methods, remediation technologies, scale effects on runoff water quality, tillage technologies, control of sediment/chemical losses. Discussions mostly descriptive, but involve some computations.

ES 4601. Soils and Pollution. (3 cr. Prereq—[2125, Chem 1021 or equiv], [Phys 1042 or equiv] or #, 3416 recommended)
Principles of microbiology, chemistry, physics applied to evaluation of pollution of soils. Mitigation of pollution in agricultural/urban settings, remediation of polluted sites.

ES 5211. Environmental Biophysics and Ecology. (3 cr; A-F only. Prereq—AgEc 1009, [Biol 2125, Chem 1021 or equiv]
Basic concepts of environmental variables such as temperature, humidity, wind, and radiation. Mechanics of heat/mass transfer between a living organism and its surrounding environment. Set of practical examples to integrate concepts and transport processes.

ES 5212. Environmental Biophysics and Ecology Laboratory. (1 cr; A-F only. Prereq—Biol 1009, Math 1271, Phys 1282, Phys 1101)
Introduces experimental techniques in environmental biophysics and ecological studies. Measuring biophysical parameters of plants, animals, and their surrounding environments. Defining/describing physical status of a living organism, determining the rate of mass/energy exchange.

ES 5555. Wetland Soils. (2-3 cr; A-F only. Prereq—1125 or 2125 or equiv or #, 4511 recommended)
Morphology, chemistry, hydrology, formation of mineral/organic soils in wet environments. Soil morphological indicators of wet conditions, field techniques of identifying hydric soils for wetland delineations. Peatlands. Wetland benefits, preservation, regulation, mitigation. Field trips, lab, field hydric soil delineation project.

ES 5601. Principles of Waste Management. (3 cr; A-F only. Prereq—AgEc 2125, Biol 1002/1009 or Chem 201, Stat 3011, [AgrEc 1101 or #])
Waste and waste management principles, issues, problems, and solutions in remedying waste stream. MSW and yard waste composting, WTE incineration operation, ash disposal, recycling, landfill requirements, direct landfill disposal, regulatory trends, and case studies.
Family Education (FE)
Department of Work, Community, and Family Education
College of Education and Human Development

FE 5001. Family Education Perspectives. (3 cr; A-F only)
Origins, evolution, and critique of alternative perspectives on family education. Implications for clients, programs, and educators.

FE 5003. Contemporary Family Education. (3 cr; A-F only)
Transitions in family life examined, with emphasis on preparing educators and educational programs.

FE 5200. Special Topics in Family Education. (1-4 cr [max 20 cr])
Topics either not covered in available courses or not covered in sufficient breadth/depth to meet student needs/interests. Topics vary.

FE 5201. Family and Work Relationships. (3 cr; A-F only)
Examination of the interactions of work and family to prepare professionals for improving work and family relationships.

FE 5202. Sexuality Education. (3 cr; A-F only. Prereq—Human sexual behavior course, family ed course)
Preparation to develop, deliver, and evaluate sexuality education. Strategies to help children and adults acquire information, form values, develop interpersonal skills, and exercise personal responsibility in the sexual dimensions of individual and family life.

FE 5203. Family Communication Education. (3 cr; A-F only)
Knowledge and skills needed to develop, deliver, and evaluate educational programs about family communications. Examination of family communications principles and issues. Development of appropriate teaching methods and materials.

FE 5301. Program Planning in Family Education. (3 cr; A-F only)
Exploration of curriculum research and theory; examination and critique of alternative perspectives and their concomitant implications for families; development and evaluation of family education curriculum and programs.

FE 5302. Family Education Curriculum in Secondary Schools. (3 cr; A-F only. Prereq—STEP1 student)
Examination, development, and implementation of family and consumer science curriculum in secondary schools. Emphasizes curricular perspectives from social reconstruction and cognitive processes.

FE 5303. Instructional Strategies in Family Education. (3 cr; A-F only. Prereq—STEP1 student)
Theory/research relevant to methods of teaching. Emphasizes methods that support families taking technical, communicative, and emancipatory action.

FE 5968. Introduction to Parent Education: History and Philosophy. (1 cr; A-F only)
History, philosophy, and implementation of parent education programs.

FE 5701. Practice of Parent Education I. (3 cr; A-F only)
Examination of parent education in community settings; consideration of parents as adult learners with diverse backgrounds; development of group facilitation skills; observation and interviewing in community settings; reflection on and critique of the practice of parent education.

FE 5702. Practice of Parent Education II. (3 cr; A-F only. Prereq—5701 or A)
Development of curriculum for parent education; consideration of teaching groups and individuals; consideration of ethics in parent education; evaluation of parent education programs; development of curriculum and teaching portfolio; reflection on and critique of the practice of parent education.

FE 5703. Advanced Practice of Parent Education. (3 cr. Prereq—5702 or A)
Evolving perspectives of parent education. Emphasis on psycho-dynamic, conceptual-change approaches. Reflective and dialogic approaches for working with parents in understanding beliefs and examining their origins and consequences. Examination of issues related to diversity, self-awareness, ethics, and evaluation.

FE 5712. Parent-Child Interactions. (3 cr; A-F only)
Preparation to assess/apply theories/practices for everyday parent child relationships.

FE 5715. Reflective Dialogue in Parent Education. (3 cr; A-F only)

FE 5796. Parent Education Practicum. (1-4 cr [max 4 cr]. Prereq—5702 or A)
Supervised parent education field assignments designed according to licensure requirements and individual student needs, interests, and prior competencies.

FE 5993. Directed Study in Family Education. (1 cr-4 cr [max 4 cr]. Prereq—Entering fr)
Independent study in areas not covered by regular courses. Specific program of study is jointly determined by student and advising faculty member.

FE 5996. Internship in Family Education. (1-6 cr [max 6 cr]. Prereq—5701)
Planned work experience focusing on educational competencies in family education settings. Nature and extent of responsibilities are defined by the position student assumes.

Family Social Science (FSoS)
Department of Family Social Science
College of Human Ecology

FSoS 1101. Intimate Relationships. (4 cr)
Focuses on couple dynamics and gives an overview of how to develop, maintain, and terminate an intimate relationship. Relationship skills and issues including communication, conflict resolution, power, and roles. Programs for marriage preparation, marriage enrichment, and marital therapy are described.

FSoS 1201. Family Development in Families: Life Span. (4 cr)
Human development in a family context. Life-course and human development theories. Individual/family development, mate selection, birth, life cycle. Physical, cognitive, language, social, social, and personality development. Historical, social, and cultural factors. How theory/research are applied to everyday lives.

FSoS 1301. Cash or Credit: You Need to Know. (1 cr; A-F only. Prereq—Enrolling fr)

FSoS 2101. Preparation for Working With Families. (2 cr; A-F only)
Systematic preparation for upper division education, research/field internships, and career possibilities in Family Social Science.

FSoS 2103. Family Policy. (3 cr. §4103)
Connections between policies that governments enact, and families and their well-being. Conceptual frameworks for influencing underlying policy choices. Evaluating consequences of such choices for diverse families.

FSoS 2105. Methods in Family Research. (3 cr. §4105)

FSoS 2191. Independent Study in Family Social Science. (1-4 cr [max 12 cr]. Prereq—Sopth, #)
Independent reading or writing or research under faculty supervision.

FSoS 3101. Personal and Family Finances. (3 cr. Prereq—At least soph or #)

FSoS 3102. Family Systems and Diversity. (3 cr. Prereq—At least soph or #)
Family systems/theories applied to dynamics/processes relevant to family life. Diversity issues related to gender, ethnicity, sexual orientation, and disability. Divorce, single parenthood, remarriage. Family strengths/problems.

FSoS 3104. Global and Diverse Families. (3 cr. §4102. Prereq—At least soph or #)
Perspectives on family dynamics of various racial/ethnic populations in the United States/other countries in context of national/international economic, political, and social processes.

FSoS 3150. Special Topics in Family Social Science. (1-4 cr [max 4 cr]. Prereq—[varies by topic], at least soph)
Review of research/scholarly thought. Topics specified in Class Schedule.

FSoS 3191. Independent Study in Family Social Science. (1-5 cr [max 12 cr]. Prereq—sopth or #)
Independent reading or writing or research under faculty supervision.

FSoS 3426. Alcohol and Drugs: Families and Culture. (3 cr. §5426)

FSoS 3429. Counseling Skills Practicum I. (3 cr. §5429)
Basic counseling skills. Counselor needs/motivations, non-verbal communication, basic/advanced empathy, identifying strengths, maintaining focus, challenging discrepancies, use of self. Emphasizes building from client strengths, learning through role-playing.

FSoS 3431. Counseling Skills Practicum II. (3 cr. §5431)

FSoS 3432. Chemical Abuse and Families: an Overview. (3 cr. §5432)
Relationships, family systems, families in which alcohol or drug use is a problem. Family types, family of origin, models of family therapy, family systems theory, alcoholism. Review of literature.

FSoS 4101. Sexuality and Gender in Families and Close Relationships. (3 cr. Prereq—At least jrf or #)
Human ecology/development as frameworks for examining sexuality in close relationships. Diversity of sexual beliefs, attitudes, behaviors within differing social contexts. Using scientific knowledge to promote sexual health among individuals, couples, families through various life stages.

FSoS 4104W Family Psychology. (3 cr. Prereq—At least jrf or #)
Processes in families of origin, families of choice, and other close relationships, within diverse social contexts. Evaluating current research on family dynamics within/across generations.

FSoS 4106. Family Resource Management. (3 cr. §3103)
Analysis of how individuals/families use interpersonal, economic, natural, and community resources to make decisions, solve problems, and achieve central life purposes.
FS05 4150. Special Topics in Family Social Science. [1-4 cr (max 12 cr). Prereq–[Varies by topic; at least jr] Review of research/scholarly thought. Topics specified in Class Schedule.

FS05 4152. Gay, Lesbian, and Bisexual People in Families. [3 cr. Prereq–At least jr or #] Perspectives on gay, lesbian, and bisexuals (GLB) in families. Unique contributions of GLB to understanding diversity among families. Homophobia, mythologies, coming-out, identity, gender, social networks, intimacy, sexuality, children, parenting, aging, AIDS, ethnicity.

FS05 4153. Family Financial Counseling. [3 cr. A-F only. Prereq–[3101, 3102, 3429] or #] Introduction to family financial management applications through different stages in family financial life cycle. Case studies.

FS05 4154W. Families and Aging. [3 cr. Prereq–At least jr or #] Aging families from diverse socioeconomic/cultural groups as complex multigenerational systems interacting with ever-changing social structures.

FS05 4155. Parent-Child Relationships. [3 cr. A-F only. Prereq–At least jr or #] History, theories, research, and contemporary practices of parent-child relationships in diverse families/cultures across the life span. Preparation for professionals in education, social work, and other human service occupations.

FS05 4156. Legal-Economic Controversies in Families. [3 cr. Prereq–3101 or #] Interdisciplinary course for critical thinking about legal-economic controversies across family life span. Principles of argumentation/debate are used to analyze controversies for public decision making about controversial family issues.

FS05 4191. Independent Study in Family Social Science. [1-4 cr (max 12 cr. Prereq–Sc or #] Independent reading or writing or research under faculty supervision.

FS05 4294. Research Internship. [1-4 cr (max 4 cr. Prereq–FS05 major, at least jr or #] Research project with faculty. May include planning, proposal writing, literature review, data collection/coding/cleaning/analysis, and reporting.

FS05 4296. Field Study: Working With Families. [4-12 cr (max 12 cr; S-N only. Prereq–[2101, at least jr or #] Directed paraprofessional work experience related to student’s area of study.


FS05 5193. Directed Study in Family Social Science. [1-6 cr (max 6 cr. Prereq–FS05 or grad student in related field]


FS05 5429. Counseling Skills Practicum I. [3 cr. §4329] Basic counseling skills. Counselor needs/motivations, non-verbal communication, basic/advanced empathy, identifying strengths, maintaining focus, challenging discrepancies, use of self. Emphasizes building from client strengths, learning through role-playing.


FS05 5432. Chemical Abuse and Families: an Overview. [3 cr. §4322] Relationships, family systems with particular application to families in which alcohol or drug use is a problem. Family types, family of origin, models of family therapy, family systems theory, alcoholism. Review of literature.

Finance (Fina)

Department of Finance

Curtis L. Carlson School of Management


Finnish (Fin)

Department of German, Scandinavian, and Dutch
College of Liberal Arts

Fin 1001. Beginning Finnish. [5 cr] Emphasis on working toward novice-intermediate proficiency in all four language modalities (listening, reading, speaking, writing). Topics include every day subjects (shopping, directions, family, food, housing, etc.).

Fin 1002. Beginning Finnish. [5 cr. Prereq–1001] Continues the presentation of all four language modalities (listening, reading, speaking, writing), with a proficiency emphasis. Topics include free-time activities, careers, and the Finnish culture.


Fin 1004. Intermediate Finnish. [5 cr. Prereq–1003] Emphasis on developing intermediate mid-high proficiency in listening, reading, speaking, and writing. Contextualized work on grammar and vocabulary is supported by work with authentic readings and essay assignments.


Fin 4001. Beginning Finnish. (2 cr. §1001. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Fin 1001; see Fin 1001 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or are otherwise exempt.

Fin 4002. Beginning Finnish. (2 cr. §1002. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Fin 1002; see Fin 1002 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or are otherwise exempt.

Fin 4003. Intermediate Finnish. (2 cr. §1003. Prereq–1004 in another language or passing score on LPE or grad) Meets concurrently with Fin 1003; see Fin 1003 for description. This option is designed for students who have satisfied the CLA language requirement in another language or are graduate students or are otherwise exempt.

Fin 4004. Intermediate Finnish. (2 cr. §1004. Prereq–1004 in another language or passing score on LPE or grad) Meets with Fin 1004; see Fin 1004 for description. This option is for students who have satisfied the CLA language requirement in another language or are graduate students or otherwise exempt.
Course Descriptions

Fisheries and Wildlife (FW)

Department of Fisheries, Wildlife, and Conservation Biology

College of Natural Resources

FW 1001. Orientation in Fisheries, Wildlife, and Conservation Biology. (1 cr; A-F only)
Survey of technical requirements and education needed for careers in fisheries, wildlife, and conservation biology. Introduction to fields of work, professional career opportunities.

FW 1002. Wildlife: Ecology, Values, and Human Impact. (3 cr; Prereq–Recommended for students without natural science background)
Controversial issues involving specific wildlife management principles/techniques.

FW 1901. Freshman Seminar. (1-3 cr; Prereq–Fr)
In-depth study of issues/topics related to natural resources and the environment. Topics vary each semester.

FW 1905. Freshman Seminar. (1-3 cr [max 6 cr]; Prereq–Fr)
Issues/topics related to natural resources and the environment. Topics vary.

FW 2001. Introduction to Fisheries, Wildlife, and Conservation Biology. (3 cr; Prereq–Biol 1001 or Biol 1009)

Introduction to extinction as a process both natural and human caused. Illustrates differences in extinction events and why we should be concerned about rate of definition. Definitions of current jargon used to describe imperiled species due to their legal/biological connotations. Case history examples of wildlife species that are threatened or endangered.

FW 4001. Biometry. (4 cr; A-F only; Prereq–Math 1031)
Basic statistical concepts such as probability, sampling space, and frequency distributions. Descriptive statistics: sample tests, linear regression (simple and multiple). ANOVA, goodness of fit, nonparametric method and other selected topics (e.g., clustering and classification).

FW 4104. Hunting and Fishing Traditions: Field Sports Reflected in Arts, Literature, and Practice. (3 cr; S-N only; Prereq–Fr)
Philosophical foundations, history, traditions, and current importance of field sports in North American society. Laboratory sessions introduce making/using modern sport fishing equipment. Optional experiential learning laboratory introduces safe handling/operation of firearms, leading to State of Minnesota Firearms Safety Certificate. Lectures, invited guests, readings.

FW 4105. Hunting and Fishing Traditions: Field Sports Reflected in Arts, Literature, and Practice. (2 cr; S-N only)
Philosophical foundations, history, traditions, and current importance of field sports in North American society. Laboratory sessions introduce making/using modern sport fishing equipment. Optional experiential learning laboratory introduces safe handling/operation of firearms, leading to State of Minnesota Firearms Safety Certificate. Lectures, invited guests, readings.

FW 4106. Important Plants in Fisheries and Wildlife Habitats. (1 cr; A-F only; Prereq–4108)
Field identification of important plants in fisheries and wildlife habitats.

FW 4108. Field Methods in Research and Conservation of Vertebrate Populations. (3 cr; A-F only; Prereq–Biol 3407)
Planning/implementation of research/management projects. Collect/analyze data in groups. Group/individual oral/written reports. Each student keeps a field journal.

FW 4129. Mammalogy. (4 cr; A-F only; Prereq–Biol 2012 or #)
Evolutionary and biogeographic history of mammals. Recognize, identify, and study natural history of mammals at the ordinal level, North American mammals at familial level, and mammals north of Mexico at generic level. Minnesota mammals at specific level.

FW 4132. Invertebrate Diversity. (4 cr; A-F only; Prereq–Biol 1001 or Biol 2012)
Survey of major invertebrate phyla from standpoints of function, structure, development, and their environmental/evolutionary relationships. Focuses on major groups of multicellular invertebrates. Special unit dedicated to invertebrates of Minnesota.

FW 4136. Ichthyology. (4 cr; Prereq–Biol 2012)
Fish biology, adaptations to different environments and modes of living, and evolutionary relationships. Laboratory emphasizes anatomy and identification of Minnesota fishes.

FW 4191. Independent Study: Conservation Biology. (1-5 cr; Prereq–#)
Individual field, library, and lab research in conservation biology.

FW 4200H. Honors Seminar. (2 cr; A-F only; Prereq–FW upper div honors, #)
Current topics presented by faculty/students. Lecture/discussion.

FW 4291. Independent Study: Fisheries. (1-5 cr; Prereq–#)
Individual field, library, and lab research in fisheries.

FW 4292. Special Lectures: Fisheries. (1-5 cr; Prereq–#)
Lectures in special fields of fisheries given by visiting scholar or regular staff member.

FW 4391. Independent Study: Wildlife. (1-5 cr; Prereq–#)
Individual field, library, and lab research in wildlife.

FW 4392. Special Lectures: Wildlife. (1-5 cr; Prereq–#)
Lectures on special topics of wildlife given by visiting scholar or staff member.

FW 4401W. Introduction to Fish Physiology and Behavior. (4 cr; Prereq–Biol 1001 or Biol 1009)
How life in aquatic environment has influenced fish biology. Ionic/osmotic balance, sensory systems, gas exchange, endocrinology, growth, foraging, locomotion, reproduction, orientation/migration, toxicology.

FW 4565. Fisheries and Wildlife Ecology and Management: Field Trip. (1 cr; S-N only; Prereq–#)
Ten-day field trip to Wyoming and points en route during spring break. Emphasizes broad range of fisheries and wildlife management, including big game, waterfowl, endangered species.

FW 4701. Fisheries and Wildlife Problem Solving. (2 cr [max 2 cr]; Prereq–FW 2012 or grad student or #)
Management problem identification/analysis, information gathering/analysis, oral/written reporting. Selected management issues.

FW 4801H. Honors Research. (2 cr; A-F only; Prereq–FW upper div honors, #)
Independent research project supervised by faculty member.

FW 4802H. Honors Research. (2 cr; A-F only; Prereq–FW upper div honors, #)

FW 5003. Human Dimensions of Biological Conservation. (3 cr; Prereq–Biol 1001 or Biol 1009, Biol 3407)
Survey of social, psychological, economic, policy aspects of managing/conserving wildlife, fisheries, and related resources.

FW 5051. Analysis of Populations. (3-4 cr; Prereq–[Biol 1001 or Biol 1009, FW 4001 or Stat 3011 or Stat 5021] or #)
Factors involved in regulation, growth, general dynamics of populations. Data needed to describe populations, population growth, population models, regulatory mechanisms.

FW 5411. Aquatic Toxicology. (3 cr; Prereq–Intro chem, intro ecol, #)
Pollution assessment approaches, biological effects, fate/flow of contaminants in aquatic systems, major types of pollutants.

FW 5455. Sustainable Aquaculture. (3 cr; A-F only; Prereq–Biol 2012, Chem 1021, Math 1031 or #)
Role of aquaculture in fisheries management, biodiversity rehabilitation, and food production around the world. Implications for sustainability of human-environment interactions in different societies. Principles of fish husbandry.

FW 5571. Avian Conservation and Management. (3 cr. Prereq–EEB 4134 or grad or #)
Current problems in avian conservation/management. Nongame, wetland, game birds.

FW 5601. Fisheries Population Analysis. (3 cr; A-F only; Prereq–[4001 or Stat 5021], Biol 3407, [Math 1142 or Math 1271])
Introduction to theory/methods for estimating vital statistics of fish populations. Using microcomputers/statistical software to describe, analyze, model attributes of fish populations. Case studies from literature of marine/freshwater fisheries management.

FW 5603W. Habitats and Regulation of Wildlife. (3 cr; A-F only; Prereq–Biol 3407)
Environmental interactions of wildlife at population/community levels. Environmental threats from human activities. Habitat management practices. Objectives, policies, regulations in population management.

FW 5604W. Fisheries Ecology and Management. (3 cr; Prereq–EEB 4601)

FW 5625. Wildlife Handling and Immobilization for Research and Management. (2 cr; S-N only; Prereq–General biology, [grad student or vet med student or FW sr, AA]
Practical techniques to maximize human/animal safety and encourage effective operations. Preparation procedures, legal responsibilities, capture drugs/delivery systems, safety measures, ethical issues, basic veterinary procedures for handling wildlife. Field course. Uses live animals.

Food Science and Nutrition (FScN)

Department of Food Science and Nutrition

College of Agricultural, Food, and Environmental Sciences

FScN 1012. Sports Nutrition. (2 cr)
Physiological function and metabolic fate of all six classes of nutrients ingested by active individuals to improve athletic performance. Impact on physiology of ergogenic aids and various dietary supplements. Overview of these components in fulfilling energy/recovery needs for continual/progressive athletic performance. Web-based course.

FScN 1013. Dietary Supplements: scientific, regulatory, and cultural aspects. (3 cr)

FScN 1021. Introductory Microbiology. (4 cr)
Broad introduction to the diverse world of microbes and how they impact our world in both deadly and life-saving ways.

FScN 1090. Topics. (3 cr; A-F only)
Non-lab microbiology for nursing.