

Minutes of the University Curriculum Committee
December 13, 2007
217 Koldus

Members present: Robert Knight, Chair, College of Agriculture and Life Sciences; Tim Scott (Vice-Chair), College of Science; Les Feigenbaum (for Michael Murphy), College of Architecture; Vida Wilhem (for Jim Kracht), College of Education and Human Development; Lale Yurttas, Dwight Look College of Engineering; Vatche Tchakerian, College of Geosciences; Pamela Matthews, College of Liberal Arts; Miguel Juarez, TAMU Libraries; Norma Funkhouser, Medical Sciences Library; Bill McMullen, Texas A&M University at Galveston; Kristin Harper (for Martyn Gunn), Undergraduate Programs and Academic Services; James Herman, College of Veterinary Medicine and Biomedical Sciences.

Guests: Angela Carpenter and Kristi Shryock, Department of Aerospace Engineering; Mark Clayton, Terry Larsen, Julie Rogers and Phillip Tabb, Department of Architecture; Ashlea Schroeder, Department of Biological and Agricultural Engineering; William Rogers, Department of Chemical Engineering; Richard Furuta, Department of Computer Science; Jacqueline Hodge, Dwight Look College of Engineering; A.C. Millington and Doug Sherman, Department of Geography; David Sparks, Department of Geology and Geophysics; Ed Funkhouser and Kurt Ritter, Honors Program; Sam Cohn, Department of Sociology; Claudia Nelson, Women's Studies Program.

The University Curriculum Committee recommends approval of the following:

1. The minutes of the November 9, 2007 meeting.
2. New Courses

AMST 350. Materializing America. (3-0). Credit 3. Considers the meanings of material objects that people make and use as art and functional objects of everyday life; examines the interactions between people and objects and the ways objects shape and reflect "American" culture, both past and present. Prerequisites: AMST 300 or approval of instructor; junior or senior classification.

ASIA 306. Society and Population of Modern China. (3-0). Credit 3. Major trends and current topics in social and demographic aspects of the society of modern China, including Taiwan. Prerequisite: Junior or senior classification. Cross-listed with SOCI 306.

ASIA 329. Pacific Rim Business Behavior. (3-0). Credit 3. Theoretical models of Asian cultures and practical protocol/etiquette related to business and work in China, Thailand, South Korea, Japan, Australia, and other Pacific Rim nations; discussions of national character, managerial behavior and values. Prerequisite: Junior or senior classification. Cross-listed with SOCI 329.

ASIA 349. The Vietnam War/The American War. (3-0). Credit 3. Vietnam's relations with the West; French colonialism; origins and development of Vietnamese nationalism; Cold War and American involvement; wartime societies in North and South Vietnam; expansion of the war to Cambodia and Laos; anti-war movements in the United States; reasons for the American defeat; consequences and lessons of the war. Prerequisites: Junior or senior classification. Cross-listed with HIST 349.

ASIA 350. Asia during World War II. (3-0). Credit 3. The origins and development of Japanese imperialism; Japan's expansion into East and Southeast Asia; wartime societies; collaboration and resistance; effects of the war in the United States upon Japanese-Americans; the outcomes of the war; remembrance of the war. Prerequisite: Junior or senior classification. Cross-listed with HIST 350.

ASIA 351. Traditional East Asia. (3-0). Credit 3. History and culture of China and Japan from earliest times to the coming of the West; impact of Confucianism and Buddhism; development of social, political and economic systems. Prerequisite: Junior or senior classification. Cross-listed with HIST 351.

ASIA 352. Modern East Asia. (3-0). Credit 3. Impact of the West on traditional China and Japan; the response through modernization; rise of nationalism and formation of modern nation states. Prerequisite: Junior or senior classification. Cross-listed with HIST 352.

ASIA 354. Imperial China. (3-0). Credit 3. History of imperial China from the earliest dynasties through the mid- 19th century, including major political events, the structure of Chinese government, economic development, philosophies and religion, wars and military and culture and daily life. Prerequisite: Junior or senior classification. Cross-listed with HIST 354.

ASIA 356. Twentieth Century Japan. (3-0). Credit 3. Industrialization and modernization of Japan; its rise from an isolated nation to a major world power and economic giant. Prerequisite: Junior or senior classification. Cross-listed with HIST 356.

ASIA 463. Gender in Asia. (3-0). Credit 3. Gender dynamics in Asia; changes in gender roles; women's movements; women and the economy; women and politics; men's and women's private lives. Prerequisite: Junior or senior classification. Cross-listed with SOCI 463 and WMST 463.

CHEN 430. Risk Analysis in Safety Engineering. (3-0). Credit 3. Concepts of risk and risk assessment, which uses all available information to provide a foundation for risk-informed and cost-effective engineering practices; examples and exercises are drawn from a variety of engineering areas. Prerequisite: Junior or senior classification. Cross-listed with SENG 430.

CHEN 460. Quantitative Risk Analysis in Safety Engineering. (3-0). Credit 3. Fundamental concepts, techniques, and applications of risk analysis and risk-informed decision making for engineering students; practical uses of probabilistic methods are demonstrated in exercises and case studies from diverse engineering areas. Prerequisite: Senior or graduate classification. Cross-listed with SENG 460.

GEOS 444. The Science and Politics of Global Climate Change. (3-0). Credit 3. Examination of the policy and scientific debate over climate change; how scientific debates produce "knowledge"; how political debates produce policies; how policy debates use science; scientific evidence for climate change; impacts of climate change; possible responses to climate change; the political debate over climate change. Prerequisite: One semester of physics or one science core course.

GEOS 481. Seminar. (1-0). Credit 1. Acquaint students with current research themes in the environmental field. May be repeated 4 times for credit. Prerequisite: Junior or senior classification.

MATH 202. Discrete Mathematics for Computer Science. (3-0). Credit 3. Logic, methods of proof, set theory, functions and sequences, growth of functions, mathematical induction, divide-and-conquer recursions, relations, equivalence relations, and finite-state machines. Prerequisite: MATH 151 or equivalent.

NRSC 311. Comparative Psychology. (3-0). Credit 3. Survey of problems, principles, and methods of animal psychology; animal learning, motivation discriminative processes, and abnormal, social, and instinctual behaviors. Prerequisites: PSYC 107; PSYC 203 and 204 or junior or senior classification. Cross-listed with PSYC 311.

NRSC 320. Sensation-Perception. (3-0). Credit 3. Review of sensory physiology, sensory and perceptual phenomena and the major perceptual theories; current research in the field. Prerequisites: PSYC 107; PSYC 203 and 204 or junior or senior classification. Cross-listed with PSYC 320.

NRSC 331. Social Neuroscience. (3-0). Credit 3. Integration of biological and psychological explanations of social behavior; recent research and theories in social neuroscience; emotion, motivation, aggression, face processing, empathy, social cognition, and social relationships. Prerequisites: PSYC 107 or approval of instructor; junior or senior classification. Cross-listed with PSYC 331.

NRSC 332. Neuroscience of Learning and Memory. (3-0). Credit 3. Brain mechanisms of learning and memory from molecular to behavioral levels; synaptic plasticity, model systems, multiple memory systems, diseases of learning and memory. Prerequisites: PSYC 107 or approval of instructor; junior or senior classification. Cross-listed with PSYC 332.

NRSC 333. Biology of Psychological Disorders. (3-0). Credit 3. Neurobiology and clinical explanation of molecular mechanisms underlying psychiatric disorders and their drug treatments; depression and bipolar, anxiety disorders, mood disorders, psychosis and schizophrenia. Prerequisites: PSYC 107, PSYC 335 or one year of biology; junior or senior classification. Cross-listed with PSYC 333.

NRSC 335. Physiological Psychology. (3-0). Credit 3. Physiological bases of sensation, motor functions, emotion motivation, and complex psychological processes. Prerequisites: 6 hours of biology; PSYC 203 and 204 or junior or senior classification. Cross-listed with PSYC 335.

NRSC 340. Psychology of Learning. (3-0). Credit 3. Survey of significant concepts, experimental methods and principles of learning. Prerequisites: PSYC 107 or INST 301; PSYC 203 and 204 or junior or senior classification. Cross-listed with PSYC 340.

NRSC 360. Health Psychology and Behavioral Medicine. (3-0). Credit 3. Survey of health psychology emphasizing behavioral and lifestyle factors in health and illness, prevention and modification of health-compromising behaviors, health care utilization, and psychological management of chronic disorders and terminal illness. Prerequisite: PSYC 107. Cross-listed with PSYC 360.

NRSC 434. Regulatory and Behavioral Neuroscience. (3-0). Credit 3. Bioelectricity, nerve cell functions, brain functions; physiologic basis of behavior. Prerequisites: BIOL 319; WFSC 416 or BIOL 388. Cross-listed with BIOL 434.

PHYS 109. Big Bang and Black Holes. (3-2). Credit 4. Designed to give an intuitive understanding of the Big Bang and Black Holes, without mathematics, and de-mystify it for the non-scientist.

PSYC 331. Social Neuroscience. (3-0). Credit 3. Integration of biological and psychological explanations of social behavior; recent research and theories in social neuroscience; emotion, motivation, aggression, face processing, empathy, social cognition, and social relationships. Prerequisites: PSYC 107 or approval of instructor; junior or senior classification. Cross-listed with NRSC 331.

PSYC 332. Neuroscience of Learning and Memory. (3-0). Credit 3. Brain mechanisms of learning and memory from molecular to behavioral levels; synaptic plasticity, model systems, multiple memory systems, diseases of learning and memory. Prerequisites: PSYC 107 or approval of instructor; junior or senior classification. Cross-listed with NRSC 332.

PSYC 333. Biology of Psychological Disorders. (3-0). Credit 3. Neurobiology and clinical explanation of molecular mechanisms underlying psychiatric disorders and their drug treatments; depression and bipolar, anxiety disorders, mood disorders, psychosis and schizophrenia. Prerequisites: PSYC 107, PSYC 335 or one year of biology; junior or senior classification. Cross-listed with NRSC 333.

SOCI 306. Society and Population of Modern China. (3-0). Credit 3. Major trends and current topics in social and demographic aspects of the society of modern China, including Taiwan. Prerequisite: Junior or senior classification. Cross-listed with ASIA 306.

SOCI 332. Alternative Genders. (3-0). Credit 3. Examination of theories and case studies involving alternative genders and sexualities, studies in their cultural contexts and including the role of factors such as race, class, ethnicity, age, and physical characteristics. Prerequisites: 3 credits in SOCI or WMST; junior or senior classification. Cross-listed with WMST 332.

SOCI 426. Sociology of Work. (3-0). Credit 3. Overview of classical and contemporary theories of work, changes in labor market structure; contemporary work place organization; occupational stratification by race, class, and gender. Prerequisite: Junior or senior classification or approval of instructor.

WMST 307. Gender and Education. (3-0). Credit 3. Overview of gender and education; role of feminism and feminist theory; intersections of gender, race, class, ethnicity, and sexuality. Prerequisite: Junior or senior classification.

WMST 308. Gender and International Education. (3-0). Credit 3. Exploration of the intersection of formal and informal education and understandings of gender in countries beyond the United States. Prerequisites: WMST 307; junior or senior classification.

WMST 309. Feminist Pedagogy. (3-0). Credit 3. Exploration of educational systems' and institutions' regard for women historically and contemporarily; practical and theoretical writings on feminist pedagogy. Prerequisites: WMST 307; junior or senior classification.

WMST 332. Alternative Genders. (3-0). Credit 3. Examination of theories and case studies involving alternative genders and sexualities, studies in their cultural contexts and including the role of factors such as race, class, ethnicity, age, and physical characteristics. Prerequisites: 3 credits in SOCI or WMST; junior or senior classification. Cross-listed with SOCI 332.

3. Withdrawal of Courses

COML 221. World Literature.

COML 222. World Literature.

COML 308. History of Literary Criticism.

COML 401. Critical Theory and Practice.

COML 489. Special Topics in...

PERF 302. Entertainment Law.

4. Change in Courses

AGSM 335. Water and Soil Management.

Prerequisites

From: AGRO 301 or equivalent; AGSM 301.

To: AGSM 301.

AGSM 337. Technology for Environmental and Natural Resource Engineering.

Prerequisites

From: AGRO 301, AGSM 301, MATH 142.

To: AGSM 301, MATH 142.

AGSM 410. Spatial Technology for Precision Agriculture.

Prerequisites

From: AGRO 301, AGSM 301; AGLS 201 or equivalent; junior classification.

To: AGSM 301; AGLS 201 or equivalent; junior or senior classification.

AGSM 435. Irrigation Principles and Management.

Prerequisites

From: AGSM 335, AGSM 301, AGRO 301, MATH 141.

To: AGSM 335, AGSM 301, MATH 141.

BIMS 452. Molecular and Transgenic Experimental Approaches in Mammalian Development.

Course Title

From: Molecular and Transgenic Experimental Approaches in Mammalian Development.

To: Modifying Mammalian Genomes for Biomedical Research.

Course Description

From: Review new advances in areas of production of transgenic animals, the isolation and developmental properties of embryonic stem cells (ES) and the ability to modify specific genes in mammalian species by homologous recombination; application of genetics manipulation of mammalian cells to study human disease.

To: Review advances in the production of transgenic animals, the manipulation of embryonic stem cells for transgenics and therapeutics, the modification of specific genes in mammalian species by homologous recombination and RNA interference; special emphasis on genetic manipulation of cells and animals for biomedical research, stem-cell and gene therapy.

ENGL 351. Advanced Film.

Lecture and Lab Hours

From: (2-2). Credit 3.

To: (3-0). Credit 3.

FILM 351. Advanced Film.

Lecture and Lab Hours

From: (2-2). Credit 3.

To: (3-0). Credit 3.

GENE 452. Molecular and Transgenic Experimental Approaches in Mammalian Development.

Course Title

From: Molecular and Transgenic Experimental Approaches in Mammalian Development.

To: Modifying Mammalian Genomes for Biomedical Research.

Course Description

From: Review new advances in areas of production of transgenic animals, the isolation and developmental properties of embryonic stem cells (ES) and the ability to modify specific genes in mammalian species by homologous recombination; application of genetics manipulation of mammalian cells to study human disease.

To: Review advances in the production of transgenic animals, the manipulation of embryonic stem cells for transgenics and therapeutics, the modification of specific genes in mammalian species by homologous recombination and RNA interference; special emphasis on genetic manipulation of cells and animals for biomedical research, stem-cell and gene therapy.

SENG 430. Engineering Risk Analysis.

Course Title

From: Engineering Risk Analysis.
To: Risk Analysis in Safety Engineering.

Course Description

From: Fundamental concepts, techniques, and applications of risk analysis and risk-informed decision making for students in all engineering fields; practical uses of the methods are demonstrated in exercises and case studies from diverse engineering areas.
To: Concepts of risk and risk assessment, which uses all available information to provide a foundation for risk-informed and cost-effective engineering practices; examples and exercises are drawn from a variety of engineering areas.

Cross-list

From: None.
To: CHEN 430.

SENG 460. Quantitative Risk Analysis.

Course Title

From: Quantitative Risk Analysis.
To: Quantitative Risk Analysis in Safety Engineering.

Course Description

From: Fundamental concepts, techniques, and applications of risk analysis and risk-informed decision making for students in all engineering fields; practical uses of the methods are demonstrated in exercises and case studies from diverse engineering areas.
To: Fundamental concepts, techniques, and applications of risk analysis and risk-informed decision making for engineering students; practical uses of probabilistic methods are demonstrated in exercises and case studies from diverse engineering areas.

Cross-list

From: None.
To: CHEN 460.

WMST 420. Senior Seminar in Gender and Communication.

Course Title

From: Senior Seminar in Gender and Communication.

To: Gender and Communication.

5. Change in Curricula

College of Architecture

Department of Architecture

BED in Environmental Design

Architectural Studies Option

New Courses

ARCH 207. Architecture Design I. (1-6). Credit 4. Technology as medium for design planning and communication; impact and influence of technology on architectural design process; investigation of computing theories, systems, methods and current and future trends through creative thinking and innovation design, problem solving and creation with the use of digital media. Prerequisites: ENDS 105, 106, 115, 116.

ARCH 212. Social and Behavioral Factors in Design. (3-0). Credit 3. Social and behavioral factors in the built and natural environment; environmental perception and spatial cognition; social-environmental processes such as privacy and crowding; setting-oriented discussion on residences, education, and the workplace; the psychology of nature and natural resource management; social design and social science contribution to architectural design.

ARCH 312. Design Journal. (0-2). Credit 1. Production of a journal, in any combination of physical artifact or electronic blog, as specified by the instructor, that documents the student's experience on a study abroad program, a professional internship, or other off-campus activity; journal reflects discipline-specific communication methods for the profession of architecture. Prerequisites: Upper division classification in the BED Architectural Studies Option and enrollment in CARC 301 or ENDS 494, or other off-campus program.

ARCH 401. Design Creativity. (3-0). Credit 3. Fundamental critical and creative thinking skills needed to participate in and create the future; how design can impact the physical environment and society. Prerequisite: Upper classification in Environmental Design.

ARCH 407. Integrated Home Architecture Studio. (2-6). Credit 5. Integrated and comprehensive design, fabrication, and construction of a house, including practical experience with various architectural systems and controls. Concurrent enrollment in ARCH 432 and ARCH 436. Prerequisites: ARCH 305, 331.

ARCH 408. Experimental Home Architecture. (2-6). Credit 5. Exploration of advanced and experimental topics in home architecture including off-the-grid homes, design for disassembly, industrialized construction, smart architecture, sustainable community design, and other topics. Prerequisites: ARCH 407, 431, 434.

ARCH 431. Integrated Structures. (2-0). Credit 2. Selection and economics of structural systems in the context of integrating structural systems into a building through good design; analysis and design of wood, steel, concrete, and composite systems and members in relation to building design. Concurrent enrollment in ARCH 405 and ARCH 435. Prerequisites: ARCH 305, 331.

ARCH 432. Integrated Home Structures and Construction. (1-2). Credit 2. Selection and economics of structural systems in the context of integrating residential structures through good design; analysis and design of wood, steel, concrete, and composite systems and members in relation to building design. Concurrent enrollment in ARCH 407 and ARCH 436. Prerequisites: ARCH 305, 331.

ARCH 435. Integrated Systems. (1-2). Credit 2. An understanding of how to integrate sustainable environmental systems into a building through good design; lectures are provided as a support to studio; systems faculty participate in studio critiques throughout the project. Concurrent enrollment in ARCH 405 and ARCH 431. Prerequisites: ARCH 305, 335.

ARCH 436. Integrated Home Architecture Systems. (1-2). Credit 2. An understanding of how to integrate sustainable environmental systems into a residence through good design; lectures are provided as a support to studio; systems faculty participate in studio critiques throughout the project. Concurrent enrollment in ARCH 407 and ARCH 432. Prerequisites: ARCH 305, 335.

ARCH 458. Cultural and Ethical Considerations for Global Practice. (3-0). Credit 3. Issues and relationships within the cultural, business, legal and political environments of global practice; differences in the construction contract, bidding and various forms of construction. Prerequisite: Junior or senior classification.

ENDS 116. Design Communication Foundations II. (1-4). Credit 3. Introduction to design drawing using a wide variety of tools ranging from conventional drafting and drawing equipment to the latest digital graphic applications; a focused investigation of analytical drawing as it contributes to the design process; experience of a wide variety of drawing conventions intended to equip students to navigate a design process. Integrally related to ENDS 106. Prerequisites: ENDS 115 and concurrent enrollment in ENDS 106.

Change in Courses

ARCH 305. Architecture Design I.

Course Title

From: Architectural Design I.
To: Architectural Design III.

Lecture, Lab, Credit Hours

From: (3-9). Credit 6.
To: (2-6). Credit 5.

Prerequisites

From: ENDS 205, 211, 231, 233, 250 and CARC 481.
To: ARCH 205 or 207; ARCH 206; ARCH 249; ARCH 250.

ARCH 405. Architecture Design II.

Course Title

From: Architectural Design II.
To: Architectural Design IV.

Lecture, Lab, Credit Hours

From: (3-9). Credit 6.
To: (1-6). Credit 4.

Course Description, Prerequisites

From: Theory and practice of architecture as art and science; manual and digital graphic techniques used in the analysis and synthesis of concepts unique to site design and spatial enclosure; understanding specific cultural, social and physical contexts; the application of theory to form and building systems, site analysis and development of design solutions integrating formally expressive visual ideas and functionally adept planning and design concepts.
Prerequisites: Upper-level classification in environmental design, construction science or landscape architecture; ARCH 305; CARC 301 or ENDS 494.

To: A comprehensive design studio focused on the integration of design theory with functionally sustainable environmental and structural systems; consideration of a project from site analysis and programming through design detailing. Concurrent enrollment in ARCH 431 and ARCH 435. Prerequisites: Upper level classification in the BED Architectural Studies Option; ARCH 305; CARC 301 or ENDS 494.

ARCH 406. Interdisciplinary Design III.

Course Title

From: Interdisciplinary Design III.
To: Architecture Design V.

Lecture, Lab, Credit Hours

From: (3-9). Credit 6.
To: (2-6). Credit 5.

Course Description, Prerequisites

From: Innovative approaches to design emphasizing theory and practice of architecture as art and science; schematic design taken to a level of detail appropriate to design development; topics include the visualization of built environment; the selection and application of building and environmental systems, services, materials and connections; interior space configuration. Prerequisites: Upper level classification in environmental design, construction science or landscape architecture; ARCH 405 or VIST 405.*
To: Topical approaches to design, emphasizing theory and practice of architecture or related disciplines, such as urban design, interior design, health care design, etc. Prerequisites: Upper level classification in the BED Architectural Studies Option; ARCH 405.

ARCH 491. Research.

Course Title

From: Research.
To: Advanced Architecture Innovation Research.

Credit Hours

From: Credit 1 to 4.
To: Credit 1 to 6.

Course Description, Prerequisites

From: Research conducted under the direction of faculty member in architecture. May be repeated 2 times for credit. Prerequisites: Junior or senior classification and approval of instructor.
To: Research conducted under the direction of faculty member in the College of Architecture. May be repeated 2 times for credit. Prerequisite: Approval of instructor.

ENDS 105. Design Foundations I.

Lecture, Credit Hours

From: (1-4). Credit 3.

To: (2-4). Credit 4.

ENDS 106. Design Foundations II.

Lab, Credit Hours

From: (1-4). Credit 3.

To: (1-6). Credit 4.

ENDS 149. Survey of Architectural History I.

Course Prefix, Course Number

From: ENDS 149.

To: ARCH 249.

Course Title

From: Survey of Architectural History I.

To: Survey of World Architecture History I.

Course Description

From: A survey of the history of architecture and the human-designed and built environment from the prehistoric to the 14th century; origins and the evolution of ideas related to the question of creativity in art and architectural objects and plans that make up the total scope of the designed environment.

To: A survey of the history of western and non-western architecture and the human-designed and built environment from the prehistoric to the 14th century; origins and the evolution of ideas related to the question of creativity in art and architectural objects and plans that make up the total scope of the designed environment.

ENDS 150. Survey of Architectural History II.

Course Prefix, Course Number

From: ENDS 150.

To: ARCH 250.

Course Title

From: Survey of Architectural History II.

To: Survey of World Architecture History II.

Course Description, Prerequisite

From: A survey of the history of architecture and the human-designed and built environment from the 14th century to the present.

To: A survey of western and non-western architecture and the human-designed and built environment from the 14th century to the present.

ENDS 205. Environmental Design I.

Course Prefix

From: ENDS 205.

To: ARCH 205.

Course Title

From: Environmental Design I.

To: Architecture Design I.

Course Description, Prerequisites

From: Issues and methods in designing environments for human habitation and well-being; projects addressing site, functional planning, spatial ordering, form generation through a recognition of the synthesis of space, structure, use and context; reinforcement of appropriate graphic and model building techniques. Concurrent enrollment in ENDS 211 is not allowed. Prerequisites: ENDS 102, 103, 105, 106, 115, 170; ENDS 149 or 150.*

To: Issues and methods in designing environments for human habitation and well-being; projects addressing site, functional planning, spatial ordering, form generation through a recognition of the synthesis of space, structure, use and context; reinforcement of appropriate graphic and model building techniques. Prerequisites: ENDS 105, 106, 115, 116.

ENDS 211. Design Detailing.

Course Prefix, Course Number

From: ENDS 211.

To: ARCH 206.

Course Title

From: Design Detailing.

To: Architecture Design II.

Course Description, Prerequisites

- From: Explorations of the connections between design decisions and material choices with respect to issues of building envelope, structure and aesthetics; design detailing, material research, 2-D hand and computer drawing, and digital 3-D modeling. Prerequisite: ENDS 115 or 170.
- To: Fundamental issues of innovative design processes and creation explored through the creative use of past, present and future materials, tools, and technologies; with an emphasis upon the research of materials, methods, scale, craft and technique as instruments of design, fabrication, and production. Prerequisites: ENDS 105, 106, 115, 116.

ENDS 231. Architectural Structures I.

Course Prefix, Course Number

- From: ENDS 231.
To: ARCH 331.

Course Title

- From: Architectural Structures I.
To: Foundations Structures.

Lecture, Lab Hours

- From: (2-2). Credit 3.
To: (3-0). Credit 3.

Course Description, Prerequisites

- From: Introduction to the physical principles that govern classical statistics and strengths of materials through the design of timber and steel components of architectural structures; computer applications. Prerequisite: ENDS 106; MATH 142 or equivalent; PHYS 201 or approval of instructor or department head.
- To: Introduction to the physical principles that govern statics and strength of materials through the design of architectural structures from a holistic view, in the context of architectural ideas and examples; introduction to construction, behavior of materials, and design considerations for simple and complex structural assemblies; computer applications. Concurrent enrollment in ARCH 305. Prerequisite: Upper level classification in the BED Architectural Studies Option; MATH 142 or equivalent; PHYS 201.

ENDS 233. Environmental Systems I.

Course Prefix, Course Number

From: ENDS 233.
To: ARCH 335.

Course Title

From: Environmental Systems I.
To: Foundations Systems.

Course Description, Prerequisites

From: Theory and applications of building energy use, envelope design, shading analysis, heating and cooling systems, lighting design and construction materials; design opportunities, calculations, equipment selection and component sizing as they relate to design. Prerequisites: ENDS 106; PHYS 201 or approval of instructor or department head.

To: Theory and applications of building energy use, envelope design, shading analysis, heating and cooling systems, lighting design and construction materials; design opportunities, calculations, equipment selection and component sizing as they relate to building design. Concurrent enrollment in ARCH 305. Prerequisites: Upper level classification in the BED Architectural Studies Option; PHYS 201.

ENDS 250. History of Modern Architecture.

Course Prefix, Course Number

From: ENDS 250.
To: ARCH 350.

Course Title

From: History of Modern Architecture.
To: History and Theory of Modern and Contemporary Architecture.

Course Description, Prerequisites

From: Development of modern architecture in the 20th century; materials, structure, social and economic changes as well as architectural theory. Prerequisites: ENDS 149 and 150 or approval of instructor or department head.

To: Development of modern and contemporary architecture in the 20th and 21st centuries; materials, structure, social and economic changes as well as architectural theory. Prerequisites: ENDS 149, 150 or ARCH 249, 250.

ENDS 291. Research.

Course Title

From: Research.

To: Research in Architecture Innovation.

Course Description, Prerequisites

From: Research conducted under the direction of faculty member in environmental design. May be repeated 2 times for credit. Prerequisites: Freshman or sophomore classification and approval of instructor.

To: Research conducted under the direction of faculty member in the College of Architecture. May be repeated 2 times for credit. Prerequisites: Approval of instructor.

ENDS 329. The American House I.

Course Prefix

From: ENDS 329.

To: ARCH 329.

Course Title

From: American House I.

To: American House.

Course Description, Prerequisites

From: Pre-industrial domestic architecture in America; analysis of prototype based on contemporary documentation with an emphasis on vernacular building types and native arts; vision of the ideal life of the period as evidenced in original drawings and place within the framework of variants that impact form (climate, economics, soci-cultural factors, materials and technology). Prerequisites: ENDS 150.

To: Domestic architecture in America; analysis of prototype based on contemporary documentation with an emphasis on vernacular building types and native arts; vision of the ideal life of the period as evidenced in original drawings and place within the framework of variants that impact form (climate, economics, soci-cultural factors, materials and technology). Prerequisites: ARCH 250.

Visual Studies Option

New Courses

ARTS 104. Introduction to Graphic Design. (0-2). Credit 1. Introduction to the concepts and techniques utilized in the layout of graphic presentations; basic digital camera operations, typography, use of color, design principles; integration of type, graphic elements and images. Prerequisite: Major in environmental design.

VIST 105. Principles of Design I. (2-6). Credit 4. Survey of principles and theory of design and visual communication; elements and organizational structure of the visual language; sign, symbol, and meaning; visual perception; problem solving and the creative process; design in terms of value as well as color; emphasis on two-dimensional design.

VIST 106. Principles of Design II. (2-6). Credit 4. Fundamentals of spatial design; theory of form; transformations, additive/subtractive techniques as process; 3D composition; traditional modeling and construction techniques; formal visual analysis and critique. Prerequisite: VIST 105.

VIST 201. Writing for Design. (0-2). Credit 1. Writing as a design tool; emphasis on expanding the focus of the design studio beyond drawing and modeling; formal written analysis of works of art and architecture; writing and the design process, from concept development to final verbal presentations. Prerequisite: Concurrent enrollment in VIST 205.

VIST 205. Principles of Design III. (2-6). Credit 4. Introduction of design concepts and processes related to three-dimensional form, space and order; the relationship of anthropometrics and ergonomics to scale, human form and experience; conceptual notions and visual properties of form, materials, structure, lighting and environment; principles of spatial organization and movement through space. Prerequisites: VIST 106, ENDS 115.

VIST 206. Visual Studies Studio I. (2-6). Credit 4. Theory and practice of traditional techniques for visual communication and visualization; the camera model; principles of physically based motion; time based media and animation; development of narrative and storytelling in the creative process. Prerequisite: VIST 205.

VIST 284. Visualization Techniques. (0-2). Credit 1. Introduction to software used in the visual arts including 2D raster and vector systems, modeling, rendering, animation, post production and multimedia. Specific course content will vary based upon curriculum requirements. May be repeated for up to 3 credit hours. Prerequisite: Major in environmental design.

VIST 406. Visual Studies Studio IV. (1-5). Credit 3. Theory and practice in the development of the digital image; non-traditional modeling methods; camera control and animation techniques; special effects; creative lighting methods; non-photorealistic rendering; integration of traditional and digital media in the creation of visual works. Prerequisites: VIST 305; CARC 301 or VIST 494.

VIST 494. Internship. (6-0). Credit 6. Practical experience in an office of design allied professionals; 18-week internship with a minimum of 720 hours; continuous employment; departmental pre-approval through the department internship coordinator required; post approval evaluation conducted following the internship. May not be repeated for credit. Prerequisites: Upper level classification in Environmental Design-Visual Studies Option and approval of environmental design intern coordinator.

Change in Courses

ARTS 312. Drawing IV.

Course Number

From: ARTS 312.

To: ARTS 212.

Course Title

From: Drawing IV.

To: Life Drawing.

Lecture and Lab Hours

From: (2-4). Credit 3.

To: (1-6). Credit 3.

Prerequisites

From: ARTS 111, ENDS 115 or approval of instructor or department head.

To: ARCH 111 or ENDS 115 or approval of instructor or department head.

ENDS 375. Foundations of Visualization.

Course Prefix

From: ENDS 375.

To: VIST 375.

Course Description and Prerequisites

- From: A comprehensive introduction to visualization concepts, techniques and applications; major topic areas include the digital image, visual language, coordinate systems, geometric representation, modeling animation, image synthesis, visualization ethics and the future of visualization. Prerequisites: CPSC 110 or 111; MATH 102 and 103 or equivalents.
- To: A comprehensive introduction to visualization concepts, techniques and applications; major topic areas include cultural context, application areas, visual perception, the digital image, visual language, coordinate systems, geometric representation, modeling animation, image synthesis, image composing, ethics and the future of visualization. Prerequisites: CPSC 206; MATH 151, 152; VIST 271.

VIST 305. Visual Studies Studio I.

Course Title

- From: Visual Studies Studio I.
To: Visual Studies Studio II.

Lecture, Lab, Credit Hours

- From: (3-9). Credit 6.
To: (1-5). Credit 3.

Course Description and Prerequisites

- From: Practice of visual communication employing a variety of media, both digital and conventional; the formulation of artistic concepts and the selection of technical methods as the basis for a body of work; implementation of the working process of research, development of proposal, and building of a prototype; examination of public exhibition venues. Prerequisite: Upper level classification in Environmental Design-Visual Studies Option.
- To: Theory and practice of visual communication employing digital and conventional media; development of artistic concepts, proposal development and related implementation techniques; introduction to digital painting, 3D modeling, animatics and post production. Prerequisite: VIST 206; upper level classification in Environmental Design-Visual Studies Option

VIST 405. Visual Studies Studio II.

Course Title

From: Visual Studies Studio II.
To: Visual Studies Studio III.

Lecture, Lab, Credit Hours

From: (3-9). Credit 6.
To: (1-5). Credit 3.

Course Description and Prerequisites

From: Practice of visual communication employing a variety of media including digital and conventional media; realization, presentation and exhibition of artistic works based on proposed projects in Visual Studies Studio I. Prerequisites: VIST 305; CARC 301 or ENDS 494.

To: Theory and practice in the art and science of the visual image; scientific and mathematical principles as process; information theory and sensorial design; interactivity and user integration; integration of real and virtual environments including lighting design and material definition. Prerequisites: VIST 305; CARC 301 or VIST 494.

VIST 441. Scientific and Technological Developments in Visual Arts.

Lab, Credit Hours

From: (3-2). Credit 4.
To: (3-0). Credit 3.

Dwight Look College of Engineering

B.S. in Computer Engineering
Electrical Engineering Track
Computer Science Track

New Courses

CPSC 113. Intermediate Programming and Design. (1-3). Credit 2.

Continuation of ENGR 112; programming and design with C++; topics include design and implementation of functions, classes, and class hierarchies; software development strategies; error handling and exceptions; testing and debugging; type safety; strings; templates and the STL; graphics and GUIs; mathematical computation; and principles of object-oriented programming. Prerequisites: Knowledge of C++ programming, class design, portable graphics, and parameterized types and their implementations.

CPSC 350. Computer Architecture and Design. (3-3). Credit 4. Computer architecture and design; use of register transfer languages and simulation tools to describe and simulate computer operations; central processing unit organization; microprogramming; input/output and memory system architectures. Prerequisite: ECEN 248. Cross-listed with ECEN 350.

Change in Courses

CPSC 221. Data Structures and Algorithms.

Prerequisites

From: CPSC 121; corequisite MATH 302.

To: CPSC 113 or 121; corequisite MATH 302.

CPSC 313. Introduction to Computer Systems.

Prerequisites

From: CPSC 312.

To: CPSC 312 or corequisite CPSC 350.

CPSC 315. Programming Studio.

Prerequisites

From: CPSC 312 and 314; corequisite CPSC 313.

To: CPSC 312 and 314; or CPSC 350; corequisite CPSC 313.

ECEN 350. Computer Architecture and Design.

Lab, Credit Hours

From: (3-0). Credit 3.

To: (3-3). Credit 4.

Cross-list

From: None.

To: CPSC 350.

ECEN 449. Microprocessor Systems Design.

Lecture, Lab, Credit Hours

From: (3-3). Credit 4.

To: (2-2). Credit 3.

ECEN 454. Digital Integrated Circuit Design.

Lecture, Lab Hours

From: (3-0). Credit 3.

To: (2-2). Credit 3.

Prerequisites

From: ECEN 248 and 325.
To: ECEN 214 and 248.

Dwight Look College of Engineering
Department of Aerospace Engineering
B.S. in Aerospace Engineering

New Courses

AERO 220. Introduction to Aerospace Computation. (1-2). Credit 2.

Introduction to the basic skills required for developing computer programs that solve aerospace engineering problems; engineering and math background from previous and concurrent courses will serve as the theoretical basis and motivation for programming assignments; an integrated development environment will be used for code writing, compilation, debugging, and organization. Prerequisite: AERO 211 or registration therein.

AERO 428. Electromagnetic Sensing for Space-Borne Imaging. (3-0).

Credit 3. Study IR and Visible range imaging systems to obtain high resolution imaging of objects from space; this area has numerous applications and areas of advanced development; following instruction in needed background on optics, telescopes, and interferometry, perform preliminary design of imaging system with a different imaging design offered each year. Prerequisite: AERO 306, 351, 421.

Department of Biomedical Engineering
B.S. in Biomedical Engineering

Change in Courses

BMEN 240. Biosolid Mechanics.

Course Description and Prerequisites

From: Introduction into the mechanics of deformable media important in biomechanics, including biomaterials and biological tissues with an emphasis on mechanobiology and the formation of biological problems within the context of 1) kinematics including displacements, rotation, strains, 2) the concept of stress, 3) equilibrium, 4) constitutive relations, and 5) boundary conditions. Prerequisites: Admitted to major degree sequence in biomedical engineering; BMEN 241.

To: Introduction to the mechanics of deformable media in biomedical engineering, including medical devices, biomaterials, and soft and hard biological tissues: emphasis on biomechanics and mechanobiology and formulation of problems within the context of basic continuum biomechanics; problems include analytical solutions for stress-strain analysis of extension, distension, bending, buckling, and torsion of biosolids. Prerequisites: Admitted to major degree sequence in biomedical engineering; BMEN 231.

BMEN 241. Foundations of Biomechanics.

Course Number

From: BMEN 241.

To: BMEN 231.

Course Description

From: Foundations of mechanics in addressing biomedical problems, including introductions to mechanobiology and mechanically and thermally based clinical treatments emphasizing the development of associated mathematical preliminaries and basic concepts of thermomechanics, including 1) vectors, tensors, and matrices, 2) kinematics including displacement, rotation, acceleration, deformation gradients and velocity gradients, 3) concepts of stress and heat-flux, 4) equations of motion, and 5) constitutive relations.

To: Introduction of biomechanics in formulating and solving problems in basic science, medical device development, and clinical intervention: emphasis on deriving differential equations in one spatial dimension for the five basic postulates of continuum biomechanics, identifying illustrative constitutive relations, and providing a unified approach to studying biosolid mechanics, biofluid mechanics, bioheat and mass transport, and biothermomechanics.

Department of Chemical Engineering
B.S. in Chemical Engineering

College of Geosciences

B.S. in Environmental Geoscience
B.S. in Environmental Studies

Department of Atmospheric Sciences
B.S. in Meteorology

Department of Geography
B.S. in Geography
Geographic Information Science (GIS) Option

Department of Geology and Geophysics
B.A. in Geology
B.S. in Geology
Engineering Geology Option

B.S. in Geophysics

6. Special Consideration – Certificate Change

Dwight Look College of Engineering

Engineering Project Management Certificate - change

7. Special Consideration - Withdrawal

College of Liberal Arts

Department of European and Classical Languages and Cultures
Minor in Comparative Literature - withdrawal

8. Special Consideration

Undergraduate Programs and Academic Services

Office of Honors Programs and Academic Scholarships
University Studies Degree
Area of Concentration - Honors

9. Other Business

Change in Curriculum

College of Agriculture and Life Sciences

Department of Ecosystem Science and Management

College of Geosciences

Department of Geography

B.S. in Spatial Sciences

Note:

- The following items were handled as editorial:
New courses VIST 484, 485, 489, 491
- L. Feigenbaum withdrew ARCH 457.