

## MEMORANDUM

**Faculty Senate approved September 19, 2019**

TO: Deans and Chairs  
 FROM: Becky Bitter, Sr. Assistant Registrar  
 DATE: September 3, 2019  
 SUBJECT: Minor Change Bulletin No. 1

The courses listed below reflect the minor curricular changes approved by the catalog editor since approval of the last Minor Change Bulletin. The column to the far right indicates the date each change becomes effective.

Subject	Course Number	Current	Proposed	Effective Date
AERO	101	<del>The Foundations of USAF I</del> 1 Introduces students to the Air Force and AFROTC. Typically offered Fall.	<b><u>Heritage and Values I</u></b> 1 Introduces students to the Air Force and AFROTC. Typically offered Fall.	8-19
AERO	102	<del>The Foundations of USAF II</del> 1 Introduces students to the Air Force and AFROTC. Typically offered Spring.	<b><u>Heritage and Values II</u></b> 1 Introduces students to the Air Force and AFROTC. Typically offered Spring.	8-19
AERO	201	<del>The Evolution of USAF Air and Space Power I</del> 1 Examines general aspects of air and space power through a historical perspective. Leadership Laboratory is mandatory for AFROTC. Typically offered Fall.	<b><u>Team and Leadership Fundamentals I</u></b> 1 Fundamental principles of leadership, followership, team building, and accountability within the military; develops communication skills. Cadets also attend weekly leadership laboratory. Typically offered Fall.	8-19
AERO	202	<del>The Evolution of USAF Air and Space Power II</del> 1 Examines general aspects of air and space power through a historical perspective. Leadership Laboratory is mandatory for AFROTC. Typically offered Spring.	<b><u>Team and Leadership Fundamentals II</u></b> 1 Fundamental principles of leadership, followership, team building, and accountability within the military; develops communication skills. Cadets also attend weekly leadership laboratory. Typically offered Spring.	8-19
AERO	311	<del>Air Force Leadership Studies I</del> 3 Course Prerequisite: Concurrent enrollment in AERO 313 required. Examines general aspects of air and	<b><u>Leading People and Effective Communication I</u></b> 3 Course Prerequisite: Concurrent enrollment in AERO 313 required. Applied leadership through supervision,	8-19

		space power through a historical perspective. Typically offered Fall.	<u>mentorship, and case studies; expands on military knowledge, ethics, and communications. Cadets attend weekly leadership laboratory. Typically offered Fall.</u>	
<b>AERO</b>	<b>312</b>	<del>Air Force Leadership Studies II</del> 3 Course Prerequisite: Concurrent enrollment in AERO 313 required. <del>Examines general aspects of air and space power through a historical perspective.</del> Typically offered Spring.	<b><u>Leading People and Effective Communication II</u></b> 3 Course Prerequisite: Concurrent enrollment in AERO 313 required. <u>Applied leadership through supervision, mentorship, and case studies; expands on military knowledge, ethics, and communications. Cadets attend weekly leadership laboratory.</u> Typically offered Spring.	<b>8-19</b>
<b>AERO</b>	<b>411</b>	<del>National Security Affairs/Preparation for Active Duty I</del> 3 Course Prerequisite: Concurrent enrollment in AERO 413 required. <del>Examines general aspects of air and space power through a historical perspective.</del> Typically offered Fall.	<b><u>National Security, Leadership, and Commissioning Preparation I</u></b> 3 Course Prerequisite: Concurrent enrollment in AERO 413 required. <u>National security, regional studies, ethics, and doctrine; discusses military profession, justice, communications, and active-duty preparation. Cadets attend weekly leadership laboratory.</u> Typically offered Fall.	<b>8-19</b>
<b>AERO</b>	<b>412</b>	<del>National Security Affairs/Preparation for Active Duty II</del> 3 Course Prerequisite: Concurrent enrollment in AERO 413 required. <del>Examines general aspects of air and space power through a historical perspective.</del> Typically offered Spring.	<b><u>National Security, Leadership, and Commissioning Preparation II</u></b> 3 Course Prerequisite: Concurrent enrollment in AERO 413 required. <u>National security, regional studies, ethics, and doctrine; discusses military profession, justice, communications, and active-duty preparation. Cadets attend weekly leadership laboratory.</u> Typically offered Spring.	<b>8-19</b>
<b>AFS / HORT</b>	<b>505</b>	<b>Topics in Computational and Analytical Methods for Scientists</b> V 1-6 May be repeated for credit; cumulative maximum 6 hours. Applied computational methods for researchers processing, managing, and analyzing data in scientific and engineering fields. ( <del>Crosslisted course offered as AFS-505, HORT 505</del> ). Typically offered Fall, Spring, and Summer.	<b>Topics in Computational and Analytical Methods for Scientists</b> V 1-6 May be repeated for credit; cumulative maximum 6 hours. Applied computational methods for researchers processing, managing, and analyzing data in scientific and engineering fields. Typically offered Fall, Spring, and Summer.	<b>8-19</b>

<b>ANTH</b>	<b>561</b>	<b>Current Trends in Physical Anthropology</b> 3 May be repeated for credit. Intensive review of <del>major</del> current trends in <del>physical</del> anthropology. <del>Recommended preparation: ANTH 465. Typically offered Fall and Spring.</del>	<b>Current Trends in Biological Anthropology</b> 3 May be repeated for credit. Intensive review of current trends in <u>biological</u> anthropology.	<b>8-19</b>
<b>B A</b>	<b>100</b>	<b>Introduction to Business</b> 3 Course Prerequisite: MATH 103, 106, 140, 171, 201, 202, or ALEKS score of 40% or higher. Overview of business activities and disciplinary functions found in modern for-profit organizations; introduction to each of Carson College of Business learning goals. Typically offered Fall, Spring, and Summer.	<b>Introduction to Business</b> 3 Course Prerequisite: MATH 103, 106, 140, 171, 201, 202, <u>or concurrent enrollment allowed</u> , or ALEKS score of 40% or higher. Overview of business activities and disciplinary functions found in modern for-profit organizations; introduction to each of Carson College of Business learning goals. Typically offered Fall, Spring, and Summer.	<b>8-19</b>
<b>BSYSE</b>	<b>596</b>	<b>Biomass Thermo-Chemical Conversion</b> 3 Biomass chemistry, analytical thermo-chemistry, torrefaction, pyrolysis, gasification and combustion; characterization and uses of thermochemical products. Typically offered Fall and Spring.	<b>Biomass Thermo-Chemical Conversion</b> 3 Biomass chemistry, analytical thermo-chemistry, torrefaction, pyrolysis, gasification and combustion; characterization and uses of thermochemical products. Typically offered Fall and Spring. <u>Cooperative: Open to UI degree-seeking students.</u>	<b>8-19</b>
<b>CHE</b>	<b>352</b>	<b>Chemical Process Safety</b> 3 Course Prerequisite: CHE 301 with a C or better; CHE 332 with a C or better or concurrent enrollment; certified major in Chemical Engineering. Introduction to technical fundamentals of chemical process safety. Typically offered <del>Spring</del> .	<b>Chemical Process Safety</b> 3 Course Prerequisite: CHE 321 with a C or better; CHE 332 with a C or better; certified major in Chemical Engineering. Introduction to technical fundamentals of chemical process safety. Typically offered <u>Fall</u> .	<b>8-19</b>
<b>CHE</b>	<b>481</b>	<b>Special Topics in Chemical Engineering</b> V 1-3 May be repeated for credit; cumulative maximum 9 hours. <del>Interfacial phenomena, high temperature material processing, catalysis, biofilms, environmental technology, oil production, integrated circuit manufacturing, in situ destruction of hazardous waste.</del> Typically offered Fall and Spring.	<b>Special Topics in Chemical Engineering</b> V 1-3 May be repeated for credit; cumulative maximum 9 hours. <u>Pulp and paper processing, advanced separations, and atomistic methods in chemical engineering.</u> Typically offered Fall and Spring.	<b>1-20</b>
<b>CHEM</b>	<b>534</b>	<b>Chemical Statistical Mechanics</b> 3 Statistical theory of thermodynamic variables and chemical equilibrium;	<b>Chemical Statistical Mechanics</b> 3 Course Prerequisite: <u>CHEM 531 with a C or better or concurrent</u>	<b>8-20</b>

		calculation of equilibrium properties from spectral data; fluctuations about equilibrium; quantum statistics. Typically offered Fall and Spring.	<u>enrollment; CHEM 532 with a C or better or concurrent enrollment.</u> Statistical theory of thermodynamic variables and chemical equilibrium; calculation of equilibrium properties from spectral data; fluctuations about equilibrium; quantum statistics. Typically offered Fall and Spring.	
<b>CRM J</b>	<b>370</b>	<del>Introduction to Policing in America</del> 3 Course Prerequisite: CRM J 101. Development, organization, policies, and performance of the police. Typically offered Fall, Spring, and Summer. Cooperative: Open to UI degree-seeking students.	<b>Policing and Society</b> 3 Course Prerequisite: CRM J 101. Development, organization, policies, and performance of the police. Typically offered Fall, Spring, and Summer. Cooperative: Open to UI degree-seeking students.	<b>8-19</b>
<b>CROP SCI / HORT</b>	<b>445</b>	<b>[M] Plant Breeding</b> 4 Genetic principles underlying plant breeding and an introduction to the principles and practices of plant breeding. (Crosslisted course offered as CROP SCI 445, HORT 445). Typically offered Even Years - Spring.	<b>[M] Plant Breeding</b> 4 Genetic principles underlying plant breeding and an introduction to the principles and practices of plant breeding. (Crosslisted course offered as CROP SCI 445, HORT 445). Typically offered Even Years - Spring. Cooperative: Open to UI degree-seeking students.	<b>1-20</b>
<b>DTC</b>	<b>335</b>	<del>Digital Animation: Story, Narration and Production</del> 3 (2-2) 3-D digital animation for creative and professional presentations using Maya software, art skills, story-telling and team problem-solving techniques. Typically offered Fall, Spring, and Summer.	<b>3D Digital Animation</b> 3 (2-2) 3-D digital animation for creative and professional productions, art skills, story-telling and team problem-solving techniques. Typically offered Fall, Spring, and Summer.	<b>1-20</b>
<b>DTC / ENGLISH</b>	<b>336</b>	<del>Composition and Design</del> 3 Course Prerequisite: DTC 201. Design practices and process for composing for a multimedia environment including color, pattern and shape. (Crosslisted course offered as DTC 336, ENGLISH 336). Typically offered Fall and Spring.	<b>Multimedia Design</b> 3 Course Prerequisite: DTC 201. Design practices and process for composing for a multimedia environment including color, pattern, and shape. Typically offered Fall and Spring.	<b>1-20</b>
<b>DTC / ENGLISH</b>	<b>355</b>	<del>[M] Multimedia Authoring: Exploring New Rhetorics</del> 3 Writing for new computer-based media; multimedia authoring project; examination of new rhetorics of information technology.	<b>[M] Multimedia Authoring</b> 3 <u>Development</u> for new computer-based media; multimedia authoring projects; examination of information technology. Typically offered Fall, Spring, and Summer.	<b>1-20</b>

		( <del>Crosslisted course offered as DTC 355, ENGLISH 355</del> ). Typically offered Fall, Spring, and Summer.		
<b>DTC / ENGLISH</b>	<b>356</b>	<b>[M] Information Structures 3</b> Course Prerequisite: DTC 101. <del>[M]</del> Social and cultural role of information; research with electronic sources; production, validation, storage, retrieval, evaluation, use, impact of electronic information. ( <del>Crosslisted course offered as DTC 356, ENGLISH 356</del> ). Typically offered Fall and Spring.	<b>[M] Information Structures 3</b> Course Prerequisite: DTC 101. Social and cultural role of information; research with electronic sources; production, validation, storage, retrieval, evaluation, use, impact of electronic information. Typically offered Fall and Spring.	<b>1-20</b>
<b>DTC / ENGLISH</b>	<b>375</b>	<b>[M] Language, Texts and Technology 3</b> Course Prerequisite: DTC 101. Relationship between technology and communication; writing practices from a historical point of view. ( <del>Crosslisted course offered as DTC 375, ENGLISH 375</del> ). Typically offered Fall and Spring.	<b>[M] Language, Texts and Technology 3</b> Course Prerequisite: DTC 101. Relationship between technology and communication; writing practices from a historical point of view. Typically offered Fall and Spring.	<b>1-20</b>
<b>DTC / ENGLISH</b>	<b>435</b>	<b>Advanced Animation 3 (2-2)</b> Course Prerequisite: DTC 335. Advanced investigation of tools and methods for 2D and 3D digital animation. ( <del>Crosslisted course offered as DTC 435, ENGLISH 435</del> ). Typically offered Fall, Spring, and Summer.	<b>Advanced Animation 3 (2-2)</b> Course Prerequisite: DTC 335. Advanced investigation of tools and methods for 2D and 3D digital animation. Typically offered Fall, Spring, and Summer.	<b>1-20</b>
<b>DTC / ENGLISH</b>	<b>476</b>	<b>Digital Literacies 3</b> Course Prerequisite: DTC 375. Development and use of new literacies as they affect communication through technology. ( <del>Crosslisted course offered as DTC 476, ENGLISH 476</del> ).	<b>Digital Literacies 3</b> Course Prerequisite: DTC 375. Development and use of new literacies as they affect communication through technology.	<b>1-20</b>
<b>DTC / ENGLISH</b>	<b>477</b>	<b>Advanced Multimedia Authoring 3</b> Course Prerequisite: DTC or <del>ENGLISH 355</del> . Advanced writing, imaging and teamwork skills for authoring in new computer-based media; website project in client-oriented context. ( <del>Crosslisted course offered as DTC 477, ENGLISH 477</del> ). Typically offered Fall and Spring.	<b>Advanced Multimedia Authoring 3</b> Course Prerequisite: DTC 355. Advanced writing, imaging and teamwork skills for authoring in new computer-based media; website project in client-oriented context. Typically offered Fall and Spring.	<b>1-20</b>

<b>DTC / ENGLISH</b>	<b>478</b>	<b>Usability and Interface Design 3</b> (0-6) Course Prerequisite: <del>DTC or ENGLISH 355</del> . Design of websites using best practices of visual literacy, interface architecture and usability. ( <del>Crosslisted course offered as DTC 478, ENGLISH 478</del> ).	<b>Usability and Interface Design 3</b> (0-6) Course Prerequisite: DTC 355. Design of websites using best practices of visual literacy, interface architecture, and usability.	<b>1-20</b>
<b>DTC</b>	<b>491</b>	<b>Digital Cinema 3</b> Course Prerequisite: DTC 201 or 208. Exploration of advanced techniques, theories, and aesthetic strategies of cinema in the age of digital media, including video remix, mobile cinema, webisodes, cinematic games, hyperlinked video, and database cinema. Typically offered Spring.	<b>Advanced Digital Cinema 3</b> Course Prerequisite: DTC 201 or 208. Exploration of advanced techniques, theories, and aesthetic strategies of cinema in the age of digital media, including video remix, mobile cinema, webisodes, cinematic games, hyperlinked video, and database cinema. Typically offered Spring.	<b>1-20</b>
<b>DTC</b>	<b>498</b>	<b>Internship V <del>2-9</del></b> May be repeated for credit; cumulative maximum <del>9</del> hours. Direct professional learning experiences in the area of digital media, technology, and culture. S, F grading.	<b>Internship V <u>1-6</u></b> May be repeated for credit; cumulative maximum <u>6</u> hours. Direct professional learning experiences in the area of digital media, technology, and culture. S, F grading.	<b>1-20</b>
<b>DTC / ENGLISH</b>	<b>560</b>	<b>Critical Theories, Methods, and Practice in Digital Humanities 3</b> History, theory, and practice of digital humanities, with attention paid to how digital humanities are transforming disciplinary knowledge. (Crosslisted course offered as <del>ENGLISH 560, DTC 560</del> ).	<b>Critical Theories, Methods, and Practice in Digital Humanities 3</b> History, theory, and practice of digital humanities, with attention paid to how digital humanities are transforming disciplinary knowledge. (Crosslisted course offered as <u>DTC 560, ENGLISH 560</u> ).	<b>1-20</b>
<b>E E</b>	<b>485</b>	<b>Electric Energy Distribution Systems 3</b> Course Prerequisite: E E 361 with a C or better; certified major in Electrical Engineering or Computer Engineering. Fundamentals of distribution systems engineering, distribution system modeling and analysis, distribution load flow analysis, voltage regulation, recent advances in distribution automation. Typically offered Spring.	<b>Electric Energy Distribution Systems 3</b> Course Prerequisite: E E 361 with a C or better; certified major in Electrical Engineering, <u>Computer Science</u> , or Computer Engineering. Fundamentals of distribution systems engineering, distribution system modeling and analysis, distribution load flow analysis, voltage regulation, recent advances in distribution automation. Typically offered Spring.	<b>5-19</b>
<b>ECE</b>	<b>486</b>	<b>Solid State Device Design and Modeling 3</b> (2-3) Course Prerequisite: ECE 349. Design and modeling of solid-state devices such	--N/A--	<b>8-20</b>

		as PN diode. BJT and MOSFET. Simulation and of device design using CAD tools such as ATLAS and ATHENA for physical modeling and fabrication process integration. Typically offered Fall.		
<b>ENGLISH</b>	<b>512</b>	<b>Introduction to Graduate Study 3</b>	<b>Introduction to Graduate Study 1</b> <u>Introduction to the principles and procedures of English studies.</u>	<b>8-19</b>
<b>ENTOM</b>	<b>361</b>	<b>Honey Bee Biology 3</b> Biology of the honey bee, including behavior, genetics, evolution, pollination, sociality, and beekeeping practices.	<b>Honey Bee Biology 3</b> Biology of the honey bee, including behavior, genetics, evolution, pollination, sociality, and beekeeping practices. <u>Cooperative: Open to UI degree-seeking students.</u>	<b>8-19</b>
<b>HUMANITY / <u>HISTORY</u></b>	<b>450 / <u>465</u></b>	<b>Representations of the Holocaust 3</b> Course Prerequisite: Junior standing. How the Holocaust is represented and enters public memory through documentaries, memoirs, works of fiction, poetry, film, museums and monuments. Typically offered Spring.	<b>Representations of the Holocaust 3</b> Course Prerequisite: Junior standing. How the Holocaust is represented and enters public memory through documentaries, memoirs, works of fiction, poetry, film, museums and monuments. <u>(Crosslisted course offered as HUMANITY 450, HISTORY 465.)</u> Typically offered Spring.	<b>1-20</b>
<b>KINES</b>	<b>264</b>	<b>Fitness Concepts 3 (2-3) Course</b> Prerequisite: KINES 262. Physiological, mechanical, and health-related basis of fitness practices. Typically offered Fall, Spring, and Summer.	<b>Fitness Concepts 3 (2-3) Course</b> Prerequisite: <u>BIOLOGY 315 with a C or better, or KINES 262 with a C or better.</u> Physiological, mechanical, and health-related basis of fitness practices. Typically offered Fall, Spring, and Summer.	<b>8-19</b>
<b>MATH</b>	<b>100</b>	<b>Basic Mathematics 2 Course</b> Prerequisite: A minimum ALEKS math placement score of 1%. Review of basic arithmetic and elementary algebra. No credit earned toward degree. Typically offered Fall, Spring, and Summer. S, F grading.	<b>Basic Mathematics 2 Course</b> Prerequisite: A minimum ALEKS math placement score of 1%. Review of basic arithmetic and elementary algebra. No credit earned toward degree. Typically offered Fall <u>and</u> Spring. S, F grading.	<b>1-20</b>
<b>MATH</b>	<b>140</b>	<b>[QUAN] Calculus for Life Scientists 4 (3-3) Course</b> Prerequisite: MATH 106 with a C or better and MATH 108 with a C or better, or a minimum ALEKS math placement score of 80%. Enrollment not allowed if credit already earned	<b>[QUAN] Calculus for Life Scientists 4 (3-3) Course</b> Prerequisite: MATH 106 with a C or better and MATH 108 with a C or better, or a minimum ALEKS math placement score of 80%. Enrollment not allowed if credit already earned	<b>1-20</b>

		for MATH 171, 202, or 206. Differential and integral calculus with emphasis on life science applications. Credit not granted for more than one of MATH 140, 171, 202, 206. Typically offered Fall, Spring, <del>and Summer</del> .	for MATH 171, 202, or 206. Differential and integral calculus with emphasis on life science applications. Credit not granted for more than one of MATH 140, 171, 202, 206. Typically offered Fall <u>and</u> Spring.	
<b>MATH</b>	<b>201</b>	<b>Mathematics for Business and Economics</b> 3 Course Prerequisite: MATH 101 with a C or better, MATH 103 with a C or better, or a minimum ALEKS math placement score of 65%. Mathematical analysis using polynomial, exponential, and logarithmic functions; linear systems, linear programming and <del>probability</del> , for business and economic applications. Typically offered Fall, Spring, and Summer.	<b>Mathematics for Business and Economics</b> 3 Course Prerequisite: MATH 101 with a C or better, MATH 103 with a C or better, or a minimum ALEKS math placement score of 65%. Mathematical analysis using polynomial, exponential, and logarithmic functions; linear systems, linear programming and <u>mathematics of finance</u> , for <u>business/economic applications and modeling</u> . Typically offered Fall, Spring, and Summer.	<b>8-19</b>
<b>MATH</b>	<b>202</b>	<b>[QUAN] Calculus for Business and Economics</b> 3 Course Prerequisite: MATH 106 with a C or better, MATH 201 with a C or better, or a minimum ALEKS math placement score of 80%. Enrollment not allowed if credit already earned for MATH 140, 171, or 206. Differential <del>and integral</del> calculus of the polynomial, exponential, and logarithmic functions. Credit not granted for more than one of MATH 140, 171, 202, 206. Typically offered Fall, Spring, and Summer.	<b>[QUAN] Calculus for Business and Economics</b> 3 Course Prerequisite: MATH 106 with a C or better, MATH 201 with a C or better, or a minimum ALEKS math placement score of 80%. Enrollment not allowed if credit already earned for MATH 140, 171, or 206. Differential calculus of the polynomial, exponential, and logarithmic functions; <u>focus on unconstrained and constrained optimization, single and partial differentiation</u> . Credit not granted for more than one of MATH 140, 171, 202, 206. Typically offered Fall, Spring, and Summer.	<b>8-19</b>
<b>MATH</b>	<b>302</b>	<b>Theory of Numbers</b> 3 Course Prerequisite: MATH 172 with a C or better, or MATH 182 with a C or better; MATH 301 with a C or better. Divisibility properties of integers; congruences; Diophantine equations; quadratic residues. Typically offered Spring.	<b>Theory of Numbers</b> 3 Course Prerequisite: MATH 172 with a C or better, or MATH 182 with a C or better; MATH 301 with a C or better. Divisibility properties of integers; congruences; Diophantine equations; quadratic residues. Typically offered <u>Odd Years</u> - Spring.	<b>1-20</b>
<b>MATH</b>	<b>303</b>	<b>[M] Geometry for the Middle School Teacher</b> 3 Course	<b>[M] Geometry for the Middle School Teacher</b> 3 Course	<b>1-20</b>



		Prerequisite: MATH 252. Topics in 2D and 3D geometry including technology-based reasoning and exploration, deductive arguments, transformational and proportional reasoning, and non-Euclidean geometries. Typically offered Fall <del>and Summer</del> .	Prerequisite: MATH 252. Topics in 2D and 3D geometry including technology-based reasoning and exploration, deductive arguments, transformational and proportional reasoning, and non-Euclidean geometries. Typically offered Fall.	
<b>MATH</b>	<b>325</b>	<b>Elementary Combinatorics 3</b> Course Prerequisite: MATH 220 with a C or better or MATH 230 with a C or better. Introduction to combinatorial theory: counting methods, binomial coefficients and identities, generating functions, occurrence relations, inclusion-exclusion methods. Typically offered Fall <del>and Spring</del> .	<b>Elementary Combinatorics 3</b> Course Prerequisite: MATH 220 with a C or better or MATH 230 with a C or better. Introduction to combinatorial theory: counting methods, binomial coefficients and identities, generating functions, occurrence relations, inclusion-exclusion methods. Typically offered Fall.	<b>1-20</b>
<b>MATH</b>	<b>340</b>	<b>Introduction to Mathematical Biology 3</b> Course Prerequisite: MATH 140 with a C or better, or MATH 172 with a C or better, or MATH 182 with a C or better; BIOLOGY 101, BIOLOGY 102, BIOLOGY 106, or BIOLOGY 107. Mathematical biology and development of mathematical modeling for solutions to problems in the life sciences. (Crosslisted course offered as MATH 340, BIOLOGY 340). Typically offered <del>Fall and Spring</del> .	<b>Introduction to Mathematical Biology 3</b> Course Prerequisite: MATH 140 with a C or better, or MATH 172 with a C or better, or MATH 182 with a C or better; BIOLOGY 101, BIOLOGY 102, BIOLOGY 106, or BIOLOGY 107. Mathematical biology and development of mathematical modeling for solutions to problems in the life sciences. (Crosslisted course offered as MATH 340, BIOLOGY 340). Typically offered Spring.	<b>1-20</b>
<b>MATH</b>	<b>403</b>	<b>Euclidean and Non-Euclidean Geometry 3</b> Course Prerequisite: MATH 301 with a C or better. Geometry as a deductive system of logic; postulational systems; projective and non-Euclidian geometries. Typically offered Fall.	<b>Euclidean and Non-Euclidean Geometry 3</b> Course Prerequisite: MATH 301 with a C or better. Geometry as a deductive system of logic; postulational systems; projective and non-Euclidian geometries. Typically offered <u>Odd Years</u> - Fall.	<b>1-20</b>
<b>MATH</b>	<b>441 / 541</b>	<b>Applied Mathematics II: Complex Variables 3</b> Course Prerequisite: MATH 315. Complex numbers and complex-valued functions of one complex variable; analytic functions and Cauchy-Riemann equations; differentiation and contour integration; Cauchy integral	<b>Applied Mathematics II: Complex Variables 3</b> Course Prerequisite: MATH 315. Complex numbers and complex-valued functions of one complex variable; analytic functions and Cauchy-Riemann equations; differentiation and contour integration; Cauchy integral	<b>1-20</b>

		theorem; Taylor and Laurent series; residues; conformal mapping; applications to potential theory. Credit not granted for both MATH 441 and MATH 541. Required preparation must include differential equations. Offered at 400 and 500 level. Typically offered Spring. Cooperative: Open to UI degree-seeking students.	theorem; Taylor and Laurent series; residues; conformal mapping; applications to potential theory. Credit not granted for both MATH 441 and MATH 541. Required preparation must include differential equations. Offered at 400 and 500 level. Typically offered <u>Odd Years - Spring</u> . Cooperative: Open to UI degree-seeking students.	
<b>MATH / CPT S</b>	<b>448/548 430/530</b>	<b>Numerical Analysis 3 Course</b> Prerequisite: MATH 315 with a C or better; one of CPT S 121, 131, or MATH 300, with a C or better. Fundamentals of numerical computation; finding zeroes of functions, approximation and interpolation; numerical integration (quadrature); numerical solution of ordinary differential equations. (Crosslisted course offered as MATH 448, MATH 548, CPT S 430, CPT S 530). Required preparation must include differential equations and a programming course. Offered at 400 and 500 level. Typically offered Fall, Spring, <del>and Summer</del> .	<b>Numerical Analysis 3 Course</b> Prerequisite: MATH 315 with a C or better; one of CPT S 121, 131, or MATH 300, with a C or better. Fundamentals of numerical computation; finding zeroes of functions, approximation and interpolation; numerical integration (quadrature); numerical solution of ordinary differential equations. (Crosslisted course offered as MATH 448, MATH 548, CPT S 430, CPT S 530). Required preparation must include differential equations and a programming course. Offered at 400 and 500 level. Typically offered Fall <u>and</u> Spring.	<b>1-20</b>
<b>MATH / CPT S</b>	<b>453 / 553</b>	<b>Graph Theory 3 Course</b> Prerequisite: MATH 220 or MATH 230. Graphs and their applications, directed graphs, trees, networks, Eulerian and Hamiltonian paths, matrix representations, construction of algorithms. (Crosslisted course offered as MATH 453, MATH 553, CPT S 453, CPT S 553). Required preparation must include linear algebra. Offered at 400 and 500 level. Typically offered Fall. Cooperative: Open to UI degree-seeking students.	<b>Graph Theory 3 Course</b> Prerequisite: MATH 220 or MATH 230. Graphs and their applications, directed graphs, trees, networks, Eulerian and Hamiltonian paths, matrix representations, construction of algorithms. (Crosslisted course offered as MATH 453, MATH 553, CPT S 453, CPT S 553). Required preparation must include linear algebra. <u>Recommended preparation: MATH 301</u> . Offered at 400 and 500 level. Typically offered Fall. Cooperative: Open to UI degree-seeking students.	<b>1-20</b>
<b>MATH</b>	<b>533</b>	<b>Teaching College Mathematics 1</b> May be repeated for credit; cumulative maximum 3 hours. Course Prerequisite: Graduate standing in Mathematics. Theory	<b>Teaching College Mathematics 1</b> May be repeated for credit; cumulative maximum 3 hours. <u>Course Prerequisite: Graduate standing in Mathematics or</u>	<b>8-19</b>

		and practice of mathematics instruction at the collegiate level.	<u>Statistical Science</u> . Theory and practice of mathematics instruction at the collegiate level.	
MIS	372	<b>[M] Data Management 3</b> Course Prerequisite: MIS <del>322</del> ; certified major or minor in the College of Business, or certified major in Data Analytics. The management of data in business environments.	<b>[M] Data Management 3</b> Course Prerequisite: <u>MIS 250</u> ; certified major or minor in the College of Business, or certified major in Data Analytics. The management of data in business environments.	8-19
NEP	340	<del><b>Foods with Application to Physical Activity</b></del> 3 (2-3) Course Prerequisite: Certified major in nutrition and exercise physiology, or admitted to the Master of Science in Coordinated Program in Dietetics, Nutrition, and Exercise Physiology. Experimental approach to physical, chemical and sensory properties of foods; overview of culinary techniques, technology and application to physical activity.	<b><u>Essentials of Food Preparation for Health Sciences</u></b> 3 (2-3) Course Prerequisite: Certified major in nutrition and exercise physiology, or admitted to the Master of Science in Coordinated Program in Dietetics, Nutrition, and Exercise Physiology. Experimental approach to physical, chemical and sensory properties of foods; overview of culinary techniques, technology and application to physical activity.	8-19
NEP	458	<del><b>Nutrition and Exercise Throughout the Life Cycle</b></del> 3 Course Prerequisite: NEP 400; NEP 402; NEP 435; certified major in Nutrition and Exercise Physiology. Physical activity relating to nutritional needs and dietary patterns from infancy through old age and including maternal nutrition.	<b>Nutrition Throughout the Life Cycle</b> 3 Course Prerequisite: NEP 400; NEP 402; NEP 435; certified major in Nutrition and Exercise Physiology. Physical activity relating to nutritional needs and dietary patterns from infancy through old age and including maternal nutrition.	8-19
NEP	478	<del><b>Electrocardiography, Medications and Procedures</b></del> 3 (2-3) Course Prerequisite: NEP 435; NEP 463; NEP 476; certified major in Nutrition and Exercise Physiology. Development of ECG interpretation skills, including 12-leads, with emphasis on procedures and impact of medication in resting and exercising persons.	<b><u>Cardiopulmonary Physiology</u></b> 3 (2-3) Course Prerequisite: NEP 435; NEP 463; NEP 476; certified major in Nutrition and Exercise Physiology. Development of ECG interpretation skills, including 12-leads, with emphasis on procedures and impact of medication in resting and exercising persons.	8-19
NEUROSCI	592	<b>Research Writing and Seminar 3</b> May be repeated for credit; cumulative maximum 6 hours. Course Prerequisite: Graduate student in Neuroscience program. Essentials of oral and written	<b>Research Writing and Seminar 2</b> May be repeated for credit; cumulative maximum 6 hours. Course Prerequisite: Graduate student in Neuroscience program. Essentials of oral and written	1-20

		scientific communication. Typically offered Fall.	scientific communication. Typically offered Fall.	
<b>PSYCH</b>	<b>372</b>	<b>[BSCI] Biological Basis of Behavior 3</b> Course Prerequisite: Sophomore standing. Functional relationship between nervous system and behavior; integrated organ systems, sensory processes, and investigative procedures. <del>Occasional lab meetings required; see instructor for times.</del> Recommended preparation: PSYCH 105 or PSYCH 265; BIOLOGY 102, BIOLOGY 107, or BIOLOGY 101 and 105.	<b>[BSCI] Biological Basis of Behavior 3</b> Course Prerequisite: Sophomore standing. Functional relationship between nervous system and behavior; integrated organ systems, sensory processes, and investigative procedures. Recommended preparation: PSYCH 105 or PSYCH 265; BIOLOGY 102, BIOLOGY 107, or BIOLOGY 101 and 105.	<b>1-20</b>
<b>PSYCH</b>	<b>534</b>	<b>Clinical Psychopharmacology 3</b> Course Prerequisite: PSYCH 533 or <del>COUN PSY 517; PSYCH 574 or 575</del> ; Ph.D. student in Clinical or <del>Counseling</del> Psychology. Classification, clinical application, and mechanisms of psychotherapeutic drugs used in the treatment of mental disorders. Typically offered Fall and Spring.	<b>Clinical Psychopharmacology 3</b> Course Prerequisite: PSYCH 533; Ph.D. student in Clinical Psychology. Classification, clinical application, and mechanisms of psychotherapeutic drugs used in the treatment of mental disorders. Typically offered Fall and Spring.	<b>1-20</b>
<b>PSYCH</b>	<b>547</b>	<b>Clinical Health and Primary Care Psychology Practicum 3</b> May be repeated for credit; cumulative maximum 18 hours. Course Prerequisite: <del>PSYCH 544</del> ; Ph.D. student in Clinical Psychology. Supervised practice in the application of clinical health and primary care psychology in medical settings. Typically offered Fall and Spring. S, F grading.	<b>Clinical Health and Primary Care Psychology Practicum 3</b> May be repeated for credit; cumulative maximum 18 hours. Course Prerequisite: Ph.D. student in Clinical Psychology. Supervised practice in the application of clinical health and primary care psychology in medical settings. Typically offered Fall and Spring. S, F grading.	<b>1-20</b>
<b>SHS</b>	<b>566</b>	<b>Off-Campus Practicum Public School Setting V 2 (0-6) to 6 (0-18)</b> May be repeated for credit; cumulative maximum 15 hours. <del>Course Prerequisite: SHS 575.</del> Advanced clinical practice in a public school setting; evaluation and treatment of speech, language, and hearing disorders. SHS graduate student; all undergraduate prerequisite courses completed. S, F grading.	<b>Off-Campus Practicum Public School Setting V 2 (0-6) to 6 (0-18)</b> May be repeated for credit; cumulative maximum 15 hours. <u>By departmental consent only; minimum grade of B in SHS 575 or a grade of S in SHS 566 or SHS 568 in the prior semester or summer term, and a minimum grade of C in all prior SHS graduate coursework.</u> Advanced clinical practice in a public school setting; evaluation and treatment of speech, language, and	<b>1-20</b>

			hearing disorders. SHS graduate student; all undergraduate prerequisite courses completed. S, F grading.	
SHS	568	<b>Off-campus Practicum Clinical Setting V 2 (0-6) to 6 (0-18)</b> May be repeated for credit; cumulative maximum 15 hours. <del>Course</del> <b>Prerequisite:</b> SHS 575. Advanced clinical practice in an off-campus clinical/medical setting; evaluation and treatment of speech, language and hearing disorders. S, F grading.	<b>Off-campus Practicum Clinical Setting V 2 (0-6) to 6 (0-18)</b> May be repeated for credit; cumulative maximum 15 hours. <u>By departmental consent only; minimum grade of B in SHS 575 or a grade of S in SHS 566 or SHS 568 in the prior semester or summer term, and a minimum grade of C in all prior SHS graduate coursework.</u> Advanced clinical practice in an off-campus clinical/medical setting; evaluation and treatment of speech, language and hearing disorders. S, F grading.	1-20
SHS	570	<b>Advanced Internship in Speech-Language Pathology V 1-18</b> May be repeated for credit. <del>Course</del> <b>Prerequisite:</b> SHS 566 or SHS 568. Advanced practicum in diagnosis of and therapy for communication disorders. SHS graduate student; all undergraduate prerequisite courses completed. S, F grading.	<b>Advanced Internship in Speech-Language Pathology V 1-18</b> May be repeated for credit. <u>By departmental consent only; must have a minimum grade of B in SHS 566, 568, and 575, and a minimum grade of C in all other SHS graduate coursework for internship placement.</u> Advanced practicum in diagnosis of and therapy for communication disorders. SHS graduate student; all undergraduate prerequisite courses completed. S, F grading.	1-20
STAT	380	<b>[M] Decision Making and Statistics 3</b> Course Prerequisite: STAT 360 or 370. Concepts and methods of decision science using simple mathematical, statistical and computer based tools to solve complex problems for sound decision making. Typically offered Fall.	<b>[M] Decision Making and Statistics 3</b> Course Prerequisite: STAT 360 or 370. Concepts and methods of decision science using simple mathematical, statistical and computer based tools to solve complex problems for sound decision making. Typically offered Spring.	1-20
STAT	410 / 510	<b>Topics in Probability and Statistics 3</b> May be repeated for credit; cumulative maximum 6 hours. Current topics in probability and statistics of mutual interest to faculty and students. Credit not	<b>Topics in Probability and Statistics 3</b> May be repeated for credit; cumulative maximum 6 hours. Current topics in probability and statistics of mutual interest to faculty and students. Credit not	1-20

		granted for both STAT 410 and STAT 510. Recommended preparation: One 3-hour 300-level STAT course. Offered at 400 and 500 level. <del>Typically offered Fall and Spring.</del>	granted for both STAT 410 and STAT 510. Recommended preparation: One 3-hour 300-level STAT course. Offered at 400 and 500 level.	
<b>STAT</b>	<b>419</b>	<b>Introduction to Multivariate Statistics</b> 3 Course Prerequisite: MATH 220; one 300-400-level STAT. Introductory course covering multidimensional data, multivariate normal distribution, principal components, factor analysis, clustering, and discriminant analysis. Typically offered Spring.	<b>Introduction to Multivariate Statistics</b> 3 Course Prerequisite: MATH 220; one 300-400-level STAT. Introductory course covering multidimensional data, multivariate normal distribution, principal components, factor analysis, clustering, and discriminant analysis. Typically offered <u>Fall and Spring</u> .	<b>1-20</b>
<b>STAT</b>	<b>422</b>	<b>Sampling Methods</b> 3 Course Prerequisite: STAT 212, 360, or 370. Simple and stratified random sampling; systematic sampling; cluster sampling; double sampling, area sampling. <del>Typically offered Fall and Spring.</del> Cooperative: Open to UI degree-seeking students.	<b>Sampling Methods</b> 3 Course Prerequisite: STAT 212, 360, or 370. Simple and stratified random sampling; systematic sampling; cluster sampling; double sampling, area sampling. Cooperative: Open to UI degree-seeking students.	<b>1-20</b>
<b>STAT</b>	<b>423 / 523</b>	<b>Statistical Methods for Engineers and Scientists</b> 3 Hypothesis testing; linear, multilinear, and nonlinear regression; analysis of variance for designed experiments; quality control; statistical computing. Credit not normally granted for both STAT 423 and 430. Recommended preparation: One 3-hour 300-level STAT course. Offered at 400 and 500 level. Typically offered Spring.	<b>Statistical Methods for Engineers and Scientists</b> 3 Hypothesis testing; linear, multilinear, and nonlinear regression; analysis of variance for designed experiments; quality control; statistical computing. Credit not normally granted for both STAT 423 and 430. Recommended preparation: One 3-hour 300-level STAT course. Offered at 400 and 500 level. Typically offered <u>Fall and Spring</u> .	<b>1-20</b>
<b>STAT</b>	<b>446</b>	<b>Statistical Applications in Insurance</b> 3 Course Prerequisite: STAT 443. Introduction to the application of mathematics and statistics to the insurance field with a focus on actuarial science. Typically offered Spring.	<b>Statistical Applications in Insurance</b> 3 Course Prerequisite: STAT 443. Introduction to the application of mathematics and statistics to the insurance field with a focus on actuarial science. Typically offered <u>Even Years - Spring</u> .	<b>1-20</b>
<b>STAT</b>	<b>447</b>	<b>Introduction to Time Series Analysis</b> 3 Course Prerequisite: STAT 423. Introduction to the analysis and application of time	<b>Introduction to Time Series Analysis</b> 3 Course Prerequisite: <u>STAT 412 or concurrent enrollment; STAT 423 or concurrent enrollment.</u>	<b>1-20</b>

		series including AR, MA, ARMA, and ARIMA models. Typically offered <del>Fall</del> .	Introduction to the analysis and application of time series including AR, MA, ARMA, and ARIMA models. Typically offered <u>Odd Years - Spring</u> .	
UNIV	301	<del>College Major and Career Planning</del> 1 Course Prerequisite: Sophomore standing. <del>Assistance in developing effective major, career, and graduate school management approaches.</del> Typically offered Fall and Spring.	<u>Career Exploration and Professional Development 1</u> Course Prerequisite: Sophomore standing. <u>Career exploration through various types of research and professional development work including self assessments and preparation for entry into professional environments.</u> Typically offered Fall and Spring.	8-19
VET MED	579	<del>Advanced Equine Medicine 2</del> Course Prerequisite: VET MED 578. Advanced topics in pathophysiology, clinical signs, diagnosis, treatment and prognosis of common medical problems of the horse. Typically offered Spring. S, M, F grading.	<u>Advanced Equine Medicine 1</u> Course Prerequisite: VET MED 578. Advanced topics in pathophysiology, clinical signs, diagnosis, treatment and prognosis of common medical problems of the horse. Typically offered Spring. S, M, F grading.	8-19
VET PH	308	<del>Functional Anatomy of Domestic Animals 4 (3-3) Course Prerequisite: BIOLOGY 107 or junior standing.</del> Macroscopic and microscopic functional morphology of the cell, tissues, and organ systems of domestic animals; emphasis on veterinary application. Typically offered Spring.	<u>Functional Anatomy of Domestic Animals 4 (3-3)</u> Macroscopic and microscopic functional morphology of the cell, tissues, and organ systems of domestic animals; emphasis on veterinary application. <u>Recommended preparation: BIOLOGY 107 or junior standing.</u> Typically offered Spring.	5-20
VET PH	309	<del>Comparative Vertebrate Locomotion 2 Course Prerequisite: VET PH 308 or BIOLOGY 324.</del> Investigation of the functional morphology of vertebrate animals as related to design for the various means of locomotion; musculoskeletal structure, mechanics, gait identification, and structural modifications for running, jumping, digging, crawling, climbing, swimming, and flying. Typically offered Summer Session.	<u>Comparative Vertebrate Locomotion 2</u> Investigation of the functional morphology of vertebrate animals as related to design for the various means of locomotion; musculoskeletal structure, mechanics, gait identification, and structural modifications for running, jumping, digging, crawling, climbing, swimming, and flying. <u>Recommended preparation: BIOLOGY 107 or junior standing.</u> Typically offered Summer Session.	5-20