

## MEMORANDUM

**Faculty Senate approved October 7, 2021**

TO: Deans and Chairs

FROM: Becky Bitter, Sr. Assistant Registrar

DATE: September 21, 2021

SUBJECT: Minor Change Bulletin No. 2

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	Revise Drop	Current	Proposed	Effective Date
CHEM	490	Revise	<b>Current Topics in Chemistry V</b> 1-3 May be repeated for credit; cumulative maximum 6 hours. <del>Course Prerequisite: By department permission.</del> Recent advances in the understanding and application of chemical systems. Typically offered Fall and Summer.	<b>Current Topics in Chemistry V</b> 1-3 May be repeated for credit; cumulative maximum 6 hours. Recent advances in the understanding and application of chemical systems. Typically offered Fall and Summer.	8-21
CPT S	322	Revise	<b>[M] Software Engineering Principles I 3</b> Course Prerequisite: CPT S 215, 223, or 233, with a C or better; admitted to the major or minor in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, or Data Analytics. Introduction to software engineering; requirements analysis, definition, specification including formal methods; prototyping; design including object and function oriented design. Typically offered Fall and Spring.	<b>[M] Software Engineering Principles I 3</b> Course Prerequisite: CPT S 215, 223, or 233, with a C or better; admitted to the major or minor in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, Data Analytics, or <u>major in Neuroscience</u> . Introduction to software engineering; requirements analysis, definition, specification including formal methods; prototyping; design including object and function oriented design. Typically offered Fall and Spring.	1-22
CPT S	434	Revise	<b>Neural Network Design and Application 3</b> Course Prerequisite: CPT S 121, 131, or E E 221, with a C or better; STAT 360 with a C or better; admitted to the major or minor in Computer Science,	<b>Neural Network Design and Application 3</b> Course Prerequisite: CPT S 121, 131, or E E 221, with a C or better; STAT 360 with a C or better; admitted to the major or minor in Computer Science,	1-22

			Computer <del>Engineering</del> , Electrical <del>Engineering</del> , Software <del>Engineering</del> , or Data Analytics. Hands-on experience with neural network modeling of nonlinear phenomena; application to classification, forecasting, identification and control. Credit not granted for both CPT S 434 and CPT S 534. Offered at 400 and 500 level.	Computer <u>Engr.</u> , Electrical <u>Engr.</u> , Software <u>Engr.</u> , Data Analytics, or <u>major in Neuroscience</u> . Hands-on experience with neural network modeling of nonlinear phenomena; application to classification, forecasting, identification and control. Credit not granted for both CPT S 434 and CPT S 534. Offered at 400 and 500 level.	
CPT S	440	Revise	<b>Artificial Intelligence 3 Course</b> Prerequisite: CPT S 223 or 233, with a C or better; admitted to the major or minor in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, <del>or</del> Data Analytics. An introduction to the field of artificial intelligence including heuristic search, knowledge representation, deduction, uncertainty reasoning, learning, and symbolic programming languages. Credit not granted for both CPT S 440 and CPT S 540. Offered at 400 and 500 level. Typically offered Fall.	<b>Artificial Intelligence 3 Course</b> Prerequisite: CPT S 223 or 233, with a C or better; admitted to the major or minor in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, Data Analytics, or <u>major in Neuroscience</u> . An introduction to the field of artificial intelligence including heuristic search, knowledge representation, deduction, uncertainty reasoning, learning, and symbolic programming languages. Credit not granted for both CPT S 440 and CPT S 540. Offered at 400 and 500 level. Typically offered Fall.	1-22
CPT S	443	Revise	<b>Human-Computer Interaction 3 Course</b> Prerequisite: CPT S 223 or 233; admitted to the major or minor in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, <del>or</del> Data Analytics; junior standing. Concepts and methodologies of engineering, social and behavioral sciences to address ergonomic, cognitive, social and cultural factors in the design and evaluation of human-computer systems. Credit not granted for both CPT S 443 and CPT S 543. Offered at 400 and 500 level. Typically offered Spring.	<b>Human-Computer Interaction 3 Course</b> Prerequisite: CPT S 223 or 233; admitted to the major or minor in Computer Science, Computer Engineering, Electrical Engineering, Software Engineering, Data Analytics, or <u>major in Neuroscience</u> ; junior standing. Concepts and methodologies of engineering, social and behavioral sciences to address ergonomic, cognitive, social and cultural factors in the design and evaluation of human-computer systems. Credit not granted for both CPT S 443 and CPT S 543. Offered at 400 and 500 level. Typically offered Spring.	1-22
CRM J	540	Revise	<del>Seminar in</del> <b>Evaluation Research 3</b> Interrelationship of ideology,	<b>Evaluation Research 3</b> Interrelationship of ideology, data,	8-22

			data, policy development, and policy implementation in public policy analysis. (Crosslisted course offered as CRM J 540, POL S 541). Typically offered Fall and Spring. Cooperative: Open to UI degree-seeking students.	policy development, and policy implementation in public policy analysis. (Crosslisted course offered as CRM J 540, POL S 541). Typically offered Fall and Spring. Cooperative: Open to UI degree-seeking students.	
CRM J	541	Revise	<del>Seminar in Corrections</del> 3 Current issues related to the control, management, and sanctioning of criminal offenders. Typically offered Fall and Spring. Cooperative: Open to UI degree-seeking students.	<b>Corrections</b> 3 Current issues related to the control, management, and sanctioning of criminal offenders. Typically offered Fall and Spring. Cooperative: Open to UI degree-seeking students.	8-22
CRM J	572	Revise	<del>Seminar in Comparative Policing</del> 3 Study of the history, organization, and policies of policing systems in selected countries and of transnational policing. Typically offered Fall and Spring. Cooperative: Open to UI degree-seeking students.	<b>Comparative Policing</b> 3 Study of the history, organization, and policies of policing systems in selected countries and of transnational policing. Typically offered Fall and Spring. Cooperative: Open to UI degree-seeking students.	8-22
CRM J	591	Revise	<del>Seminar in the Administration of Criminal Justice</del> 3 May be repeated for credit; cumulative maximum 6 hours. Current issues, problems, and critical concerns within the field of administration of criminal justice. Typically offered Fall, Spring, and Summer. Cooperative: Open to UI degree-seeking students.	<b>Topics in the Administration of Justice</b> 3 May be repeated for credit; cumulative maximum 6 hours. Current issues, problems, and critical concerns within the field of administration of criminal justice. Typically offered Fall, Spring, and Summer. Cooperative: Open to UI degree-seeking students.	8-22
E E	311	Revise	<b>Electronics</b> 3 Course Prerequisite: E E 261 with a C or better; admitted to the major or minor in Electrical Engineering, Computer Science, Computer Engineering, or Software Engineering. Fundamental device characteristics including diodes, MOSFETs and bipolar transistors; small- and large-signal characteristics and design of linear circuits. Typically offered Fall and Spring.	<b>Electronics</b> 3 Course Prerequisite: E E 261 with a C or better; admitted to the major or minor in Electrical Engineering, Computer Science, Computer Engineering, Software Engineering, or <u>major in Neuroscience</u> . Fundamental device characteristics including diodes, MOSFETs and bipolar transistors; small- and large-signal characteristics and design of linear circuits. Typically offered Fall and Spring.	1-22
E E	321	Revise	<b>Electrical Circuits II</b> 3 Course Prerequisite: E E 261 with a C or better; admitted to the major or	<b>Electrical Circuits II</b> 3 Course Prerequisite: E E 261 with a C or better; admitted to the major or	1-22

			minor in Electrical Engineering, Computer Science, Computer Engineering, or Software Engineering. State space analysis, Laplace transforms, network functions, frequency response, Fourier series, two-ports, energy and passivity. Typically offered Fall and Spring.	minor in Electrical Engineering, Computer Science, Computer Engineering, Software Engineering, or major in <u>Neuroscience</u> . State space analysis, Laplace transforms, network functions, frequency response, Fourier series, two-ports, energy and passivity. Typically offered Fall and Spring.	
E E	324	Revise	<b>[M] Fundamentals of Digital Systems 4 (3-3) Course</b> Prerequisite: E E 214 with a C or better; admitted to the major or minor in Electrical Engineering, Computer Science, Computer Engineering, or Software Engineering. Design and analysis of synchronous sequential machines; module and bit-slice devices; alternative architectures; system-level design; asynchronous sequential machines. Typically offered Fall.	<b>[M] Fundamentals of Digital Systems 4 (3-3) Course</b> Prerequisite: E E 214 with a C or better; admitted to the major or minor in Electrical Engineering, Computer Science, Computer Engineering, Software Engineering, or major in <u>Neuroscience</u> . Design and analysis of synchronous sequential machines; module and bit-slice devices; alternative architectures; system-level design; asynchronous sequential machines. Typically offered Fall.	1-22
E E	341	Revise	<b>Signals and Systems 3 Course</b> Prerequisite: E E 321 with a C or better; STAT 360 with a C or better or concurrent enrollment, or STAT 443 with a C or better or concurrent enrollment; admitted to the major or minor in E E, Cpt S, Cpt E, or Software Engineering. Discrete and continuous-time signals, LTI systems, convolution, sampling, Fourier transform, filtering, DFT, amplitude modulation, probability applications. Typically offered Fall and Spring.	<b>Signals and Systems 3 Course</b> Prerequisite: E E 321 with a C or better; STAT 360 with a C or better or concurrent enrollment, or STAT 443 with a C or better or concurrent enrollment; admitted to the major or minor in E E, Cpt S, Cpt E, Software <u>Engr</u> , or major in <u>Neuroscience</u> . Discrete and continuous-time signals, LTI systems, convolution, sampling, Fourier transform, filtering, DFT, amplitude modulation, probability applications. Typically offered Fall and Spring.	1-22
E E	451	Revise	<b>Distributed Parameter Systems 3 Course</b> Prerequisite: E E 331 with a C or better; admitted to the major in Electrical Engineering, Computer Science, or Computer Engineering. Maxwell's equations, plane waves, waveguides,	<b>Distributed Parameter Systems 3 Course</b> Prerequisite: E E 331 with a C or better; admitted to the major or minor in Electrical Engineering, Computer Science, Computer Engineering, or Software <u>Engineering</u> . Maxwell's equations, plane waves, waveguides,	1-22

			resonators, antennas, numerical methods. Typically offered Spring.	resonators, antennas, numerical methods. Typically offered Spring.	
<b>E E</b>	<b>464</b>	<b>Revise</b>	<b>Digital Signal Processing I 3</b> Course Prerequisite: E E 341 with a C or better; admitted to the major or minor in Electrical Engineering, Computer Science, Computer Engineering, or Software Engineering. Discrete and fast Fourier transforms; Z-transform; sampling; discrete convolution; digital filter design; effects of quantization. Typically offered Fall.	<b>Digital Signal Processing I 3</b> Course Prerequisite: E E 341 with a C or better; admitted to the major or minor in Electrical Engineering, Computer Science, Computer Engineering, Software Engineering, or <u>major in Neuroscience</u> . Discrete and fast Fourier transforms; Z-transform; sampling; discrete convolution; digital filter design; effects of quantization. Typically offered Fall.	<b>1-22</b>
<b>E E / <u>ECE</u></b>	<b>582</b>	<b>Revise</b>	<b>Advanced Topics V 1-3</b> May be repeated for credit. Cooperative: Open to UI degree-seeking students.	<b>Advanced Topics V 1-3</b> May be repeated for credit. ( <u>Crosslisted course offered as E E 582, ECE 582.</u> ) Cooperative: Open to UI degree-seeking students.	<b>8-21</b>
<b>MATH</b>	<b>108</b>		<b>Trigonometry 2</b> Course Prerequisite: MATH 106 with a C or better. Graphs, properties and applications of trigonometric functions. <del>Credit not normally granted for both MATH 108 and 107.</del> Typically offered Fall, Spring, and Summer.	<b>Trigonometry 2</b> Course Prerequisite: MATH 106 with a C or better. Graphs, properties and applications of trigonometric functions. Typically offered Fall, Spring, and Summer.	<b>8-21</b>
<b>MATH</b>	<b>251</b>		<b>Fundamentals of Elementary Mathematics I 3 (2-2)</b> Course Prerequisite: MATH 101, 103, 105, or 106, each with a C or better, or STAT 212 with a C or better, or a minimum ALEKS math placement score of 45%. Comprehensive development of number systems emphasizing place-value, integers, rational numbers, and associated algorithms; methods of problem solving. Typically offered Fall and Spring.	<b>Fundamentals of Elementary Mathematics I 3 (2-2)</b> Course Prerequisite: MATH 101, 103, 105, 106, <u>or 201</u> , each with a C or better, or STAT 212 with a C or better, or a minimum ALEKS math placement score of 45%. Comprehensive development of number systems emphasizing place-value, integers, rational numbers, and associated algorithms; methods of problem solving. Typically offered Fall and Spring.	<b>8-21</b>
<b>MATH</b>	<b>300</b>		<b>Mathematical Computing 3</b> Course Prerequisite: MATH 220 or MATH 230. Examination of some current computer software for solving mathematical problems. Recommended preparation: MATH	<b>Mathematical Computing 3</b> Course Prerequisite: MATH 220, <u>225</u> , or 230; <u>admitted to the major in Mathematics</u> . Examination of some current computer software for solving mathematical problems.	<b>8-21</b>

			315. Typically offered Fall and Summer.	Recommended preparation: MATH 315. Typically offered Fall and Summer.	
MATH	301		<b>Introduction to Mathematical Reasoning</b> 3 Course Prerequisite: MATH 220 <del>with a C or better</del> , or MATH 230 with a C or better. Mathematical arguments and the writing of proofs. Typically offered Fall, Spring, and Summer.	<b>Introduction to Mathematical Reasoning</b> 3 Course Prerequisite: MATH 220, <u>225</u> , or 230, <u>each</u> with a C or better. Mathematical arguments and the writing of proofs. Typically offered Fall, Spring, and Summer.	8-21
MATH	315		<b>Differential Equations</b> 3 Course Prerequisite: MATH 273 <del>with a C or better</del> or Math 283 with a C or better; and MATH 220 with a C or better or concurrent enrollment, <del>or MATH 230 with a C or better or concurrent enrollment</del> . Linear differential equations and systems; series, numerical and qualitative approaches; applications. Typically offered Fall, Spring, and Summer.	<b>Differential Equations</b> 3 Course Prerequisite: MATH 273 or 283, <u>each</u> with a C or better; and MATH 220, <u>225</u> , or 230, <u>each</u> with a C or better, or concurrent enrollment. Linear differential equations and systems; series, numerical and qualitative approaches; applications. Typically offered Fall, Spring, and Summer.	8-21
MATH	320		<b>[M] Elementary Modern Algebra</b> 3 Course Prerequisite: MATH 220 <del>with a C or better</del> or MATH 230 with a C or better. Algebra as a deductive system; number systems; groups, rings, and fields. Typically offered Spring.	<b>[M] Elementary Modern Algebra</b> 3 Course Prerequisite: MATH 220, <u>225</u> , or 230, <u>each</u> with a C or better; <u>MATH 301</u> . Algebra as a deductive system; number systems; groups, rings, and fields. Typically offered Spring.	8-21
MATH	325		<b>Elementary Combinatorics</b> 3 Course Prerequisite: MATH 220 with a C or better <del>or MATH 230 with a C or better</del> . Introduction to combinatorial theory: counting methods, binomial coefficients and identities, generating functions, occurrence relations, inclusion-exclusion methods. Typically offered Fall.	<b>Elementary Combinatorics</b> 3 Course Prerequisite: MATH 220, <u>225</u> , or 230, <u>each</u> 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.	8-21
MATH	352		<b>Probability and Data Analysis for Middle School Teachers</b> 3 Course Prerequisite: MATH 251; MATH 252. Probability and statistics in relation to middle school mathematics and real world problems through visualization, hands-on activities, and technology. Typically offered Spring.	<b>Probability and Data Analysis for Middle School Teachers</b> 3 Course Prerequisite: MATH 251 <u>and</u> 252; or STAT 360. Probability and statistics in relation to middle school mathematics and real world problems through visualization, hands-on activities, and technology. Typically offered Spring.	8-21

<b>MATH</b>	<b>364</b>		<b>Principles of Optimization 3</b> Course Prerequisite: MATH 202, MATH 220, or MATH 230. Algebra of linear inequalities; duality; graphs, transport networks; linear programming; special algorithms; nonlinear programming; selected applications. Typically offered Fall and Spring.	<b>Principles of Optimization 3</b> Course Prerequisite: MATH 202, 220, <u>225</u> , or 230. Algebra of linear inequalities; duality; graphs, transport networks; linear programming; special algorithms; nonlinear programming; selected applications. Typically offered Fall and Spring.	<b>8-21</b>
<b>MATH</b>	<b>420</b>		<b>Linear Algebra 3 Course</b> Prerequisite: MATH 220 <del>with a C or better</del> , or MATH 230 with a C or better; MATH 301 with a C or better. Vector spaces, linear transformations, diagonalizability, normal matrices, inner product spaces, orthogonality, orthogonal projections, least-squares, SVD. Typically offered Fall.	<b>Linear Algebra 3 Course</b> Prerequisite: MATH 220, <u>225</u> , or 230, <u>each</u> with a C or better; MATH 301 with a C or better. Vector spaces, linear transformations, diagonalizability, normal matrices, inner product spaces, orthogonality, orthogonal projections, least-squares, SVD. Typically offered Fall.	<b>8-21</b>
<b>MATH / CPT S</b>	<b>453 / 553</b>	<b>Revise</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. Recommended preparation: MATH 301. 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, <u>225</u> , or 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. Recommended preparation: MATH 301. Offered at 400 and 500 level. Typically offered Fall. Cooperative: Open to UI degree-seeking students.	<b>8-21</b>
<b>SHS</b>	<b>577</b>	<b>Revise</b>	<b>Neurogenic Disorders of Language and Cognition II 2 Course</b> <del>Prerequisite: SHS 574.</del> Study of acquired cognitive-communication disorders resulting from diffuse and/or progressive neurological damage. Typically offered Spring.	<b>Neurogenic Disorders of Language and Cognition II 2</b> Study of acquired cognitive-communication disorders resulting from diffuse and/or progressive neurological damage. Typically offered Spring.	<b>8-21</b>
<b>STAT</b>	<b>212</b>		<b>[QUAN] Introduction to Statistical Methods 4 (3-2) Course</b> Prerequisite: MATH 101, 103, 105, or 251, each with a C or better, or	<b>[QUAN] Introduction to Statistical Methods 4 (3-2) Course</b> Prerequisite: MATH 101, 103, 105, or 251, each with a C or better, or	<b>8-21</b>

		<p>credit for MATH 106, 108, 140, 171, 201, or a minimum ALEKS math placement score of 45%. Introduction to descriptive and inferential statistics: t-tests, chi-square tests, one-way ANOVA, simple linear regression and correlation. Typically offered Fall, Spring, and Summer.</p>	<p>credit for MATH 106, 108, 140, 171, 201, <u>202</u>, or a minimum ALEKS math placement score of 45%. Introduction to descriptive and inferential statistics: t-tests, chi-square tests, one-way ANOVA, simple linear regression and correlation. Typically offered Fall, Spring, and Summer.</p>	
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