



COVER SHEET FOR ALL CURRICULUM PROPOSALS

Check all Campuses making this proposal.	ALL Proposals	New Programs/Courses		
	PC Signature	CEO Signature <i>(CEO signature needed for all <u>new programs</u> and any new courses that have new facility/resource costs associated with the course)</i>	New Program Approval Supplement B <i>(“Budget” included for each campus)</i>	New Program Approval Section 6 <i>(“Cost Effectiveness and Resources” included for each campus)</i>
ACC				
CCC				
GWCC				
HCC				
MCC				
MxCC				
NVCC				
NWCC				
NCC				
QVCC				
TRCC				
TxCC				

Type of Proposal.

<input type="checkbox"/>	NEW Program (degree)
<input type="checkbox"/>	NEW Certificate
<input type="checkbox"/>	NEW Course
<input type="checkbox"/>	
<input type="checkbox"/>	MODIFICATION of an Aligned Program (degree)
<input type="checkbox"/>	MODIFICATION of an Aligned Certificate
<input checked="" type="checkbox"/>	MODIFICATION of an Aligned Course
<input type="checkbox"/>	
<input type="checkbox"/>	DISCONTINUATION of a Program (degree)
<input type="checkbox"/>	DISCONTINUATION of a Certificate
<input type="checkbox"/>	DISCONTINUATION of a Course
<input type="checkbox"/>	
<input type="checkbox"/>	OTHER (please describe):



Modification of an Existing Aligned Course

This template should be used by the faculty discipline and program workgroups to modify an official record of a course for inclusion in the CT State Community College catalog. All original information as approved should be included, with revisions highlighted within the document and summarized in the “Summary of Changes.” Please use the form below, or the original approved template with revisions highlights can be copied here, with a summary of changes and effective date included and all changes highlighted within the document.

Directions: *Please provide the date, name of originator, title, and campus below.*

Date: 5/3/24

Name of Originator: Sue Lounsbury

Title of Originator: Professor of Mathematics

Primary Campus of Originator: Tunxis

COURSE INFORMATION (Aligned)

COURSE INFORMATION (Modified)

COURSE TITLE:	Foundations of Advanced Mathematics	COURSE TITLE:	
COURSE CODE: <small>(3-4-letter subject code and number)</small>	MATH 2623 (formerly MAT*287)	COURSE CODE: <small>(3-4-letter subject code and number)</small>	
SUMMARY OF CHANGES:		SUMMARY OF CHANGES:	This course is typically only offered during the Spring semester. We propose a change to the course description so that students and advisors understand that this course is not necessarily offered every semester and can plan their pathway for completing their degree accordingly.
EFFECT DATE OF CHANGES:		EFFECT DATE OF CHANGES:	Spring 2025

CREDIT HOURS:	4	CREDIT HOURS:	
CONTACT HOURS:	4	CONTACT HOURS:	
PREREQUISITES: Student must have earned an acceptable grade in all prerequisites before enrolling	A grade of C- or higher in MATH 2610.	PREREQUISITES: Student must have earned an acceptable grade in all prerequisites before enrolling	
COREQUISITES: Student must be enrolled in this course during the same term.	None	COREQUISITES: Student must be enrolled in this course during the same term.	
COURSE DESCRIPTORS: For example: General Education course, Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	General Education - Math/Quantitative Reasoning	COURSE DESCRIPTORS: For example: General Education course, Clinical, Lab, Studio, Distance Learning, Seminar, Practicum. Use designated codes: (once developed)	
CATALOG COURSE DESCRIPTION:	A bridge between calculus and upper-level mathematics courses. Logic, sets, relations, functions, methods of proof. The course uses examples from calculus, elementary number theory, geometry, discrete mathematics, basic abstract algebra, and linear algebra. Emphasis is on concepts that will be encountered in later undergraduate courses. It is intended for Mathematics majors.	CATALOG COURSE DESCRIPTION:	A bridge between calculus and upper-level mathematics courses. Logic, sets, relations, functions, methods of proof. The course uses examples from calculus, elementary number theory, geometry, discrete mathematics, basic abstract algebra, and linear algebra. Emphasis is on concepts that will be encountered in later undergraduate courses. It is intended for Mathematics majors. This course is typically only offered during the Spring semester.

STUDENT LEARNING OUTCOMES:	<p>Upon success completion of this course the student will:</p> <ol style="list-style-type: none"> 1) State and apply logic and set operations, properties of number systems, and properties of functions and relations 2) Explore ideas within mathematical structures presented to form, investigate, and prove conjectures 3) Demonstrate the ability to write mathematical proofs 4) Communicate effectively and explain mathematics both verbally and in writing 5) Use acquired mathematical skills to undertake independent learning and to be a contributing member of a problem-solving team 6) Appreciate the beauty, joy and challenge in mathematics and experience mathematics as an engaging field with contemporary open questions 	STUDENT LEARNING OUTCOMES:	<p>Upon success completion of this course the student will:</p>
TOPICS OUTLINE:	<p>List Instructional units:</p> <ol style="list-style-type: none"> 1) Logic (10% of time) <ol style="list-style-type: none"> i. Propositions and connectives ii. Conditionals and biconditionals iii. Quantifiers 2) Methods of Proof (35% of time) <ol style="list-style-type: none"> i. Proving universal statements <ol style="list-style-type: none"> A. Trivial proofs B. Vacuous proofs C. Direct proofs D. Proofs by contraposition E. Proofs by contradiction F. Proofs by cases ii. Disproving universal statements iii. Proving existential statements <ol style="list-style-type: none"> A. Constructive existential proofs B. Non-constructive existential proofs iv. Disproving existential statements v. Proving and disproving statements with both quantifiers 	TOPICS OUTLINE:	<p>List Instructional units:</p>

	<ul style="list-style-type: none"> vi. Proofs using the principle of mathematical induction <p>3. Set Theory (10%)</p> <ul style="list-style-type: none"> i. Basic notations and operations ii. Set identities iii. Indexed families of sets iv. Power sets <p>4. Relations (20%)</p> <ul style="list-style-type: none"> i. Properties of relations (symmetry, anti-symmetry, transitivity, reflexivity, etc.) ii. Equivalence relations iii. Ordering relations <p>5. Functions (20%)</p> <ul style="list-style-type: none"> i. Terminology (domain, codomain, range, image, preimage, etc.) ii. Restrictions, extensions, projections, compositions iii. Injectivity, surjectivity, bijectivity <p>6. Cardinality of Sets and the Continuum Hypothesis (5% of time)</p>		
<p>ADDITIONAL INFORMATION (OPTIONAL): Note any special instructions, recommended texts, or materials (e.g., open-source materials)</p>	<p>None</p>	<p>ADDITIONAL INFORMATION (OPTIONAL): Note any special instructions, recommended texts, or materials (e.g., open-source materials)</p>	

CLASSROOM REQUIREMENTS (e.g., Computer lab, Kitchen, Science Lab, Studio, Lecture)	Lecture	CLASSROOM REQUIREMENTS *Note: If modified classroom requirements result in increased demand for Budget, Facilities, Equipment, and/or Personnel, the campus CEO must approve this proposal. (e.g., Computer lab, Kitchen, Science Lab, Studio, Lecture)	
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Resource needs have been discussed with Library Services and Information Technology Operations. (Complete if applicable.)

Name and Title	Signature of Originator	Date

- No Library Services needed.**
- No Technology Services needed.**

GOVERNANCE BODY	SIGNATURES	DATE
Statewide Discipline Council		
School Area Curriculum Council		
Curriculum Congress		
School Area Academic Dean		
CT State Provost		
*Campus CEO (if applicable)		
*CT State President (if applicable)		