



Computing and Mathematics

College of Science and Engineering

Curriculum Maps | 2022

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Computer Information Technology Curriculum Map

- * **INTRODUCTORY**- introduce learning goals
(update or initial reflection)
- * **DEVELOPMENTAL**- develop/emphasize learning
goals (places of formative assessment)
- * **MASTERY**- mastery/measure learning goals
(assignments, capstones, places of summative
assessment)

CORE COURSE REQUIREMENTS			ANALYZE A PROBLEM, IDENTIFY AND DEFINE THE COMPUTING REQUIREMENTS APPROPRIATE TO ITS SOLUTION					
Course Code	Required/ Elective	Course Name	DESIGN, IMPLEMENT, AND EVALUATE A COMPUTER- BASED SOLUTION TO MEET A GIVEN SET OF COMPUTING REQUIREMENTS					
CIT 216	R	PROJECT MANAGEMENT	D	D	D	D	D	M
CIT 304	R	SYSTEM ANALYSIS/DESIGN	M	M	D	I	I	D
CIT 306	R	DATABASE DEVELOPMENT	D	D	I	I	I	D
CIT 428	R	INFORMATION SYSTEMS	D	D	D	D	D	D
CIT 442	R	INFORMATION SYSTEM SECURITY	D	M	D	M	I	D
CIT 498	R	SENIOR PAPER PREPARATION	M	M	M	M	M	M
CIT 499	R	SENIOR PAPER/PROJECT	M	M	M	M	M	M
CIT/CSC	E	ELECTIVE (300-400 LEVEL)**	D	D	D	D	D	D
CSC 111	R	INTRODUCTION TO COMPUTING	I	I	I	I	I	I
CSC 206	R	INTERMEDIATE PROGRAMMING	D	D	D	I	D	D
CSC 341	R	INTERNET PROGRAMMING	D	D	D	D	D	D
CSC 441	R	DATA COMMUNICATIONS	D	D	D	I	D	D
MAT 207	R	DISCRETE MATHEMATICS	I	I	I	I	I	I

** 9 hours of electives required.

Computer Science Curriculum Map

- * **INTRODUCTORY**- introduce learning goals (update or initial reflection)
- * **DEVELOPMENTAL**- develop/emphasize learning goals (places of formative assessment)
- * **MASTERY**- mastery/measure learning goals (assignments, capstones, places of summative assessment)

CORE COURSE REQUIREMENTS			Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.	Communicate effectively in a variety of professional contexts.	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	Apply computer science theory and software development fundamentals to produce computing-based solutions. [CS]
Course Code	Required /Elective	Course Name						
MAT 201	R	CALCULUS I						
MAT 202	R	CALCULUS II						
MAT 207	R	DISCRETE MATHEMATICS						
MAT 312	R	LINEAR AND MATRIX ALGEBRA						
MAT 325	R	PROBABILITY AND STATISTICS						
CSC 100	R	COMPUTING & MATHEMATICS SEMINAR						
CSC 111	R	INTRODUCTION TO COMPUTING	I	I	I	I		I
CSC 206	R	INTERMEDIATE PROGRAMMING	D	I	I	I		I
CSC 212	R	COMPUTING ETHICS				M		
CSC 255	R	DATA STRUCTURES	D	D				D
CSC 321	R	DATA COMMUNICATIONS	D	D	D	D		D
CSC 351	R	DESIGN OF OPERATING SYSTEMS	M	M			M	M
CSC 356	R	DESIGN & ANALYSIS OF ALGORITHMS	M	M				
CSC 453	R	COMPILER DESIGN	M	M				M
CIT/CSC	E	ELECTIVE (300-400 LEVEL)**						
CSC 498	R	SENIOR PROJECT I	M	M	M	M		M
CSC 499	R	SENIOR PROJECT II	M	M	M	M		M

Information Technology Curriculum Map

- * **INTRODUCTORY**- introduce learning goals (update or initial reflection)
- * **DEVELOPMENTAL**- develop/emphasize learning goals (places of formative assessment)
- * **MASTERY**- mastery/measure learning goals (assignments, capstones, places of summative assessment)

Information Technology Curriculum Map			APPLY KNOWLEDGE OF COMPUTING AND MATHEMATICS APPROPRIATE TO THE DISCIPLINE															ANALYZE A PROBLEM, AND IDENTIFY AND DEFINE THE COMPUTING REQUIREMENTS APPROPRIATE TO ITS SOLUTION															DESIGN, IMPLEMENT, AND EVALUATE A COMPUTER-BASED SYSTEM, PROCESS, COMPONENT, OR PROGRAM TO MEET DESIRED NEEDS															FUNCTION EFFECTIVELY ON TEAMS TO ACCOMPLISH A COMMON GOAL															PROFESSIONAL, ETHICAL, LEGAL, SECURITY AND SOCIAL ISSUES AND RESPONSIBILITIES															COMMUNICATE EFFECTIVELY WITH A RANGE OF AUDIENCES															ANALYZE THE LOCAL AND GLOBAL IMPACT OF COMPUTING ON INDIVIDUALS, ORGANIZATIONS, AND SOCIETY															ABILITY TO ENGAGE IN CONTINUING PROFESSIONAL DEVELOPMENT															USE CURRENT TECHNIQUES, SKILLS, AND TOOLS NECESSARY FOR COMPUTING PRACTICE															USE AND APPLY CURRENT TECHNICAL CONCEPTS AND PRACTICES IN THE CORE INFORMATION TECHNOLOGIES															IDENTIFY AND ANALYZE USER NEEDS AND TAKE THEM INTO ACCOUNT IN THE SELECTION, CREATION, EVALUATION AND ADMINISTRATION OF COMPUTER-BASED SYSTEMS															EFFECTIVELY INTEGRATE IT-BASED SOLUTIONS INTO THE UNDERSTANDING OF BEST PRACTICES AND STANDARDS															ASSIST IN THE CREATION OF AN EFFECTIVE PROJECT PLAN AND THEIR APPLICATION															SOLVE REAL WORLD PROBLEMS INFORMED BY A CHRISTIAN WORLDVIEW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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Mathematics Curriculum Map

- * **INTRODUCTORY**- introduce learning goals (update or initial reflection)
- * **DEVELOPMENTAL**- develop/emphasize learning goals (places of formative assessment)
- * **MASTERY**- mastery/measure learning goals (assignments, capstones, places of summative assessment)

EFFECTIVE THINKING AND COMMUNICATION SKILLS

LINK APPLICATIONS AND THEORY

USE TECHNOLOGICAL TOOLS

DEVELOP MATHEMATICAL INDEPENDENCE AND EXPERIENCE OPEN-ENDED INQUIRY

TRAINING TO GO INTO MATH CAREERS AND MATH GRADUATE PROGRAMS

CORE COURSE REQUIREMENTS							
Course Code	Required /Elective	Course Name					
MAT 201	R	CALCULUS I	I	I	D	I	I
MAT 202	R	CALCULUS II	I	D	D	I	I
MAT 207	R	DISCRETE MATHEMATICS	D	I	I	D	D
MAT 211	R	DIFFERENTIAL EQUATIONS	D	D	D	D	D
MAT 312	R	LINEAR AND MATRIX ALGEBRA	D	D	D	D	D
MAT 313	E	COLLEGE GEOMETRY	I	I	I	D	D
MAT 318	E	ELEMENTARY NUMBER THEORY	I	D	I	M	D
MAT 321	R	CALCULUS III	I	D	D	D	D
MAT 325	E/R*	PROBABILITY AND STATISTICS	D	D	D	D	D
MAT 401	E/R*	HIGHER ALGEBRA	I	I	I	M	M
MAT 421	E/R*	ADVANCED CALCULUS I	I	D	I	M	M
MAT 429	E	TOPICS IN MATHEMATICS	D	M	D	M	M
MAT 455	E/R*	MATHEMATICAL METHODS IN PHYSICS	D	M	D	M	M
MAT 498	R	SENIOR PAPER/PROJECT PREPARATION	M	M	M	M	M
MAT 499	R	SENIOR PAPER/PROJECT	M	M	M	M	M
CSC 111	R	INTRODUCTION TO COMPUTING	I	I	I	I	I
CSC 206	R	INTERMEDIATE PROGRAMMING	I	I	D	D	D

*Two out of these four courses must be completed. Those remaining become electives.

Mathematical Preactuary Curriculum Map

* **INTRODUCTORY**- introduce learning goals (update or initial reflection)

* **DEVELOPMENTAL**- develop/emphasize learning goals (places of formative assessment)

* **MASTERY**- mastery/measure learning goals (assignments, capstones, places of summative assessment)

EFFECTIVE THINKING AND
COMMUNICATION SKILLS

LINK APPLICATIONS AND THEORY

USE TECHNOLOGICAL TOOLS

DEVELOP MATHEMATICAL
INDEPENDENCE AND EXPERIENCE OPEN-
ENDED INQUIRY

TRAINING TO GO INTO MFN CAREERS
AND MFN GRADUATE PROGRAMS

CORE COURSE REQUIREMENTS							
Course Code	Required/ Elective	Course Name					
MAT 201	R	CALCULUS I	I	I	D	I	I
MAT 202	R	CALCULUS II	I	D	D	I	I
MAT 211	R	DIFFERENTIAL EQUATIONS	D	D	D	D	D
MAT 312	R	LINEAR AND MATRIX ALGEBRA	D	D	D	D	D
MAT 321	R	CALCULUS III	I	D	D	D	D
MAT 325	E/R*	PROBABILITY AND STATISTICS	D	D	D	D	D
MAT 421	E/R*	ADVANCED CALCULUS I	I	D	I	M	M
MAT 429	E	TOPICS IN MATHEMATICS	D	M	D	M	M
MAT 455	E/R*	MATHEMATICAL METHODS IN PHYSICS	D	M	D	M	M
MAT 498	R	SENIOR PAPER/PROJECT PREPARATION	M	M	M	M	M
MAT 499	R	SENIOR PAPER/PROJECT	M	M	M	M	M
CSC 111	R	INTRODUCTION TO COMPUTING	I	I	I	I	I
CSC 206	R	INTERMEDIATE PROGRAMMING	I	I	D	D	D
FIN 303	E/R*	MONEY AND BANKING FINANCE	I	D	I	I	D
FIN 338	R	FINANCIAL MANAGEMENT	I	D	I	I	D
FIN 418	R	INVESTMENTS	I	D	I	I	M
FIN 438	R	ADVANCED FINANCIAL MANAGEMENT	I	M	I	I	M
FIN 461	E/R*	CAPITAL MARKETS	I	M	I	I	M
ACT 215	R	PRINCIPLES OF FINANCIAL ACCOUNTING I	I	I	I	I	I
ACT 216	R	PRINCIPLES OF FINANCIAL ACCOUNTING II	I	D	D	I	D
ACT 320	R	QUANTITATIVE ANALYSIS	D	D	D	D	D
BUS 201	R	PRINCIPLES OF ECONOMICS I	I	I	I	I	I
BUS 202	R	PRINCIPLES OF ECONOMICS II	I	D	D	I	D
BUS 325	R	BUSINESS LAW I	I	I	I	I	D
MGT 130	R	PRINCIPLES OF MANAGEMENT	I	I	I	I	D
MGT 431	R	STRATEGIC MANAGEMENT	D	D	D	D	D
MKT 130	R	PRINCIPLES OF MARKETING	I	I	I	I	D

*One out of these five courses must be completed. Those remaining become electives.