

**UNDERGRADUATE MAJOR: Math**  
**2021/2022**

**CREDITS REQUIRED IN MAJOR: 49**

**A GPA of 2.0 or higher is required in all courses for the major.**

**FOUNDATION/REQUIRED MAJOR COURSES**

<b>COURSE NUMBER</b>	<b>COURSE NAME</b>	<b>CREDITS</b>	<b>PREREQUISITES</b>	<b>OFFERED</b>	<b>Online</b>
MAT 152	Calculus A	4	MAT 140 or appropriate placement scores	Every semester	Yes
MAT 153	Calculus B	4	MAT 152	Every semester	Yes
MAT 252	Calculus C	4	MAT 153	Every semester	No
MAT 281	Introduction to Probability	3	MAT 153	Every Fall	No
MAT 282	Statistical Inference	3	MAT 281	Every Spring	No
MAT 290	Foundations of Mathematics	4	MAT 153	Every semester	No
MAT 295	Linear Algebra	4	MAT 153	Every semester	No
MAT 350	Differential Equations	4	MAT 252	Every Spring	No

**SELECT ONE OF THE FOLLOWING CONCENTRATIONS (9 Credits):**

	<b><i>PURE MATH</i></b>	<b>CREDITS</b>	<b>PREREQUISITES</b>	<b>OFFERED</b>	<b>Online</b>
<i>Select 3 (9 credits) from the following</i>					
MAT 352	Real Analysis	3	MAT 252 and MAT 290	Every three semesters	No
MAT 355	Complex Analysis	3	MAT 252 and MAT 290	Every three semesters	No
MAT 371	College Geometry	3	MAT 290	Every three semesters	No
MAT 392	Theory of Numbers	3	MAT 252, MAT 295, and COS 160	Every three semesters	No
MAT 395	Abstract Algebra	3	MAT 290	Every three semesters	No
MAT 490	Topology	3	MAT 252 and MAT 290	Every three semesters	No
MAT 470	Non-Euclidean or College Geometry	3	MAT 371	Every three semesters	No

**Or**

	<b>APPLIED MATH/ OPERATIONS RESEARCH</b>	<b>CREDITS</b>	<b>PREREQUISITES</b>	<b>OFFERED</b>	<b>ONLINE</b>
<i>Select 3 (9 Credits) from the following</i>					
MAT 364	Numerical Analysis	3	MAT 252, MAT 295, and COS 160	Every odd Spring	No
MAT 366	Deterministic Models in Operations Research	3	MAT 153 and MAT 295	Every even Fall	No
MAT 383	System Modeling and Simulation	3	MAT 282 or MAT 380	Every four semesters	No
MAT 460	Mathematical Modeling	3	Junior/ senior standing, some elementary calculus including differentiation and integration, elementary probability, and some computer programming experience	Every odd Fall	No
MAT 461	Stochastic Models in Operations Research	3	MAT 281 or MAT 380	Every four semesters	No
MAT 492	Graph Theory and Combinatorics	3	MAT 290	Every even Spring	No

Or

	<b>STATISTICS</b>	<b>CREDITS</b>	<b>PREREQUISITES</b>	<b>OFFERED</b>	<b>ONLINE</b>
<i>Select 3 (9 Credits) from the following</i>					
MAT 264	Statistical Pkgs.	3	MAT 282	Every four semesters	No
MAT 383	System Modeling and Simulation	3	MAT 282 or MAT 380	Every four semesters	No
MAT 386	Samplings Techniques	3	MAT 282	Every four semesters	No
MAT 387	Introduction to Applied/Biostatistical Methods	3	MAT 282	Every four semesters	No
MAT 388	Statistical Quality Control	3	MAT 282	On demand	No
MAT 484	Design and Analysis of Experiments	3	MAT 282	Every five semesters	No
MAT 485	Introduction to Applied Regression	3	MAT 282	Every five semesters	No
MAT 486	Introduction to Big Data Analytics	3	MAT 282	Every five semesters	No
MAT 487	Introduction to Categorical Data Analysis	3	MAT 282	On demand	No

MAT 488	Introduction to Data Mining	3	MAT 282	Every five semesters	No
MAT 496	Introduction to Data Science	3	MAT 282	Every five semesters	No

**SELECT 2 CLASSES of numbered 260 or above, excluding MAT 380:**

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES	OFFERED	Online
MAT					
MAT					

**NON-MAJOR REQUIREMENTS: 4 CREDITS**

COURSE NUMBER	COURSE NAME	CREDITS	PREREQUISITES	OFFERED	Online
COS 160	Structured Prob. Solving: Java	3	MAT 108 (C or higher) or appropriate placement score	Every semester	Fall
COS 170	Structured Programming Lab	1	Co-req COS 160	Every semester	Fall

**MAJOR COURSES OVERLAPPING IN THE CORE:**

CORE AREA	COURSE NUMBER	COURSE NAME	REQUIRED BY MAJOR?
QR	MAT 152	Calculus A	Yes
CAP	MAT 352	Real Analysis	Option for Pure Math
	MAT 371	College Geometry	Option for Pure Math
	MAT 395	Abstract Algebra	Option for Pure Math
	MAT 490	Topology	Option for Pure Math
	MAT 364	Numerical Analysis	Option for Applied Math
	MAT 366	Deterministic Models in OR	Option for Applied Math
	MAT 383	System Modeling and Simulation	Option for Applied Math
	MAT 460	Math Modeling	Option for Applied Math
	MAT 264	Statistical Software Packages	Option for Statistics

	MAT 387	Intro to Applied/ Biostatistical Methods	Option for Statistics
	MAT 488	Introduction to Data Mining	Option for Statistics
	MAT 496	Intro to Data Science	Option for Statistics

#### **CORE CURRICULUM CODES**

**WRI 1** – Writing, Reading, & Inquiry 1

**WRI 2** – Writing, Reading, & Inquiry 2

**WRI 3**- Writing, Reading, & Inquiry 3

**QR** – Quantitative Reasoning

**CE** – Creative Expression

**SCA** – Socio-cultural Analysis

**CI** – Cultural Interpretation

**SE** – Science Exploration

**EISRC** – Ethical Inquiry, Social Responsibility, & Citizenship

**DIV** – Diversity

**INT** – International

**EL**- Engaged Learning

**CAP** - Capstone