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## Spring 2026 Math Courses

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### Featured Electives

#### **MA 215 Sport Analytics** (Pre-Req: MA 215)

Mathematics and sports will help students understand how analytic ideas can aid in understanding athletic competitions and improving individual and team performances. The mathematical topics will include some with a statistical component (expectations, probability and risk/reward judgments) and some with a deterministic bent (optimization, ranking and validation). A variety of software packages will be used to demonstrate the many ways that a mathematical point of view can inform participants and fans alike.

Professor Gorgievski      T/F | 9:30 AM - 10:50 AM

#### **MA 235 Differential Equations** (Pre-Req: [MA 139](#) or [MA 139L](#))

This is an introductory course in ordinary differential equations with application to the social and natural sciences. First-order differential equations, second-order linear equations with constant coefficients and first-order linear systems are examined. The emphasis is on formulation of equations (modeling), analytical and graphical solution techniques and interpretation of solutions (prediction). Solution techniques include the methods of integrating factors, undetermined coefficients and variation of parameters. Linear first-order and second-order difference equations with applications are also introduced. Computer experiments are carried out in MATLAB and PHASER.

Professor Das              M/Th | 11:00 AM - 12:20 PM

#### **MA 250 Data Visualization** (Pre-Req: [MA 214](#) or [MK 340](#) or [EC 483](#))

This course covers the principles and practices of data visualization and storytelling with statistical graphics. Building on foundational statistics knowledge, students will learn how to construct clear and effective visualizations that highlight key insights from techniques like hypothesis testing, linear modeling, and multivariate analysis. A significant focus is placed on detecting misleading or confusing displays, improving integrity of visuals, communicating compelling narratives, and the ethical representation of data.

Professor Mozer      M/Th | 2:00 PM - 3:20 PM

#### **MA 352 Mathematical Statistics** (Pre-req: [MA 233](#) and [MA 263](#))

This course covers calculus-based mathematical statistics intended for upper-level undergraduate students in the mathematical sciences. The goal is to provide a solid foundation in theoretical statistical inference, which includes the theoretical aspects of estimation theory and hypothesis testing procedures. Upon completion of this course, students are expected to understand and apply basic concepts in mathematical statistics. In particular, students will study concepts in distributions and convergence, moment methods, estimations and test of statistical hypothesis.

Professor Lautier      M/W | 9:30 AM - 10:50 AM

## ALL MATH COURSES OFFERED SPRING 2026

### **MA 139 Calculus II** (Pre-Req: [MA 131](#) or [MA 131L](#))

This course is a continuation of [MA 131](#). It presents a thorough treatment of integral calculus. Integration is used to answer a wide variety of questions in probability, quantitative finance, risk management, economics, data science, and many other fields.

MA 139 is a crucial steppingstone towards developing mathematical skills and provides many benefits including:

- Completing MA139 allows you to take upper-level math courses such as
  - Continuous Probability for Risk Management ([MA263](#)),
  - Linear Algebra ([MA239](#)), and
  - Financial Calculus and Derivative Pricing ([MA 335](#)).
- MA 139 allows students to pursue the following programs:
  - Mathematical Sciences Major
  - Actuarial Science Major
  - Mathematics Minor
  - Actuarial Science Minor
- MA 139 provides a great preparation for students potentially interested in going to graduate school in programs such as quantitative finance, data science, and economics that require strong fundamental mathematics skills, including calculus.

Professor Roth      T/F | 8:00 AM - 9:20 AM

### **MA 214 Intermediate Applied Statistics** (Pre-Req: *GB 213* or [ST 113](#))

*Context and Perspectives: Scientific Inquiry*

Statisticians have assumed larger and more important roles in the modern world as corporate problems become more complex. Feedback from statisticians is used by managers at all levels, especially as data sets become larger. In MA214, you will be asked to conduct hypothesis tests on multiple populations, learn to analyze variance, see applications of multiple regression and analyze contingency tables. The statistical functions in EXCEL will be complemented by a higher-level statistical package. The course will focus on applications drawn from the primary business disciplines.

Professor Gorgievski      M/W | 8:00 AM - 9:20 AM **OR** M/W | 9:30 AM - 10:50 AM

Professor Lautier      W | 11:00 AM - 1:50 PM

**MA 214 Intermediate Applied Statistics (Honors)** (Pre-Req: GB 213 or [ST 113](#))*Context and Perspectives: Scientific Inquiry*

Statisticians have assumed larger and more important roles in the modern world as corporate problems become more complex. Feedback from statisticians is used by managers at all levels, especially as data sets become larger. In MA214, you will be asked to conduct hypothesis tests on multiple populations, learn to analyze variance, see applications of multiple regression and analyze contingency tables. The statistical functions in EXCEL will be complemented by a higher-level statistical package. The course will focus on applications drawn from the primary business disciplines.

Professor Mengyan Li      T/Th | 3:30 PM - 4:50 PM

**MA 215 Sport Analytics** (Pre-Req: MA 215)

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Professor Gorgievski      T/F | 9:30 AM - 10:50 AM

**MA 233 Calculus III** (Pre-Req: [MA 139](#) or [MA 139L](#))

This course extends concepts from Calculus I & II ([MA 131](#) & [MA 139](#)) to situations with multiple variables including multivariable differentiation and integration, vector calculus, as well as sequences and series. Understanding multivariable calculus is fundamental to working with complex problems such as the Black-Scholes equation in quantitative finance, the Cobb–Douglas production function in economics, or joint probability calculations in mathematical statistics.

Completing MA 233 is a great way for students to develop their mathematical skills and to demonstrate to employers or graduate schools their ability to work with complex problems. Students who complete MA 233 will be able to take MA 352 Mathematical Statistics and will be well positioned to complete a Mathematical Sciences Major, an Actuarial Science Major or Minor, or a Mathematics Minor. This course is strongly recommended for students considering graduate school programs such as quantitative finance, data science, and economics that require strong fundamental mathematics skills.

Professor Ciccarelli    W | 11:00 AM - 1:50 PM

**MA 235 Differential Equations** (Pre-Req: [MA 139](#) or [MA 139L](#))

This is an introductory course in ordinary differential equations with application to the social and natural sciences. First-order differential equations, second-order linear equations with constant coefficients and first-order linear systems are examined. The emphasis is on formulation of equations (modeling), analytical and graphical solution techniques and interpretation of solutions (prediction). Solution techniques include the methods of integrating factors, undetermined coefficients and variation of parameters. Linear first-order and second-order difference equations with applications are also introduced. Computer experiments are carried out in MATLAB and PHASER.

Professor Das      M/Th | 11:00 AM - 12:20 PM

**MA 250 Data Visualization** (Pre-Req: [MA 214](#) or [MK 340](#) or [EC 483](#))

This course covers the principles and practices of data visualization and storytelling with statistical graphics. Building on foundational statistics knowledge, students will learn how to construct clear and effective visualizations that highlight key insights from techniques like hypothesis testing, linear modeling, and multivariate analysis. A significant focus is placed on detecting misleading or confusing displays, improving integrity of visuals, communicating compelling narratives, and the ethical representation of data.

Professor Mozer     M/Th | 2:00 PM - 3:20 PM

**MA 252 Regression Analysis** (Pre-Req: ([MA 131](#) or [MA131L](#)) and [MA 214](#))

This course focuses on the statistical concepts that form the basis for advanced topics in regression analysis, notably the construction of multiple regression models, time-series models and an analysis of the residuals. Students apply these concepts to large, multi-dimensional data sets using advanced software such as SAS or SPSS, and gain experience in becoming more informed decision-makers through the interpretation of the software results. Emphasis is also placed on being able to communicate the statistical results to a general audience.

Professor Predescu   M/W | 9:30 AM - 10:50 AM **OR** W | 11:00 AM - 1:50 PM

**MA 255 Design of Experiments** (Pre-Req: [MA 252](#))

*Context and Perspectives: Scientific Inquiry*

The course addresses the design and analysis of experiments, with a focus on management applications. The differences, advantages and disadvantages of various designs are discussed with a special emphasis on factorial and fractional factorial designs. These popular designs allow for two or more factors to be systematically and simultaneously varied while the experimenter tries to determine not only the (main) effect of each factor, but also how the level of one factor influences the impact of another factor (aka interaction). Students will extend the long history of successes of the (fractional) factorial design into the field of management inquiry. Specific applications will stress cost savings and policy making; multiple examples will be drawn from the marketing disciplines.

Professor Mozer     M/Th | 11:00 AM - 12:20 PM

**MA 310 Actuarial Topics in Probability and Risk Management** (Pre-Req: [MA 263](#))

This is an advanced course focused on further developing fundamental tools in discrete and continuous probability necessary for the analysis and solution of risk management problems. Significant time is spent examining complex problems and determining which mathematical technique(s) to apply. Success in mastering the techniques presented requires a substantial commitment to independent study. Students doing well in this course should be prepared to take the Society of Actuaries Exam P (Probability) or Casualty Actuarial Society Exam 1.

Professor Steblovskaya     T/Th | 3:30 PM - 4:50 PM

**MA 335 Financial Calculus and Derivative Pricing** ([MA 139](#) and [ST 113](#)/GB 213)

This course provides an introduction to the basic mathematical concepts underlying the famous Black-Scholes-Merton option pricing formula and the associated financial market model, including model limitations and alternatives. Selected topics from ordinary differential equations, probability theory and statistics are used to develop and analyze the economic concepts. Hedging strategies and portfolio sensitivity parameters associated with options are also developed and discussed.

Professor Steblovskaya     T/Th | 5:00 PM - 6:20 PM

**MA 346 Data Science** (Pre-Req: (GB 213 or [ST 113](#)) and [CS 230](#))

*Context and Perspectives: Scientific Inquiry*

Working with and finding value in data has become essential to many enterprises, and individuals with the skills to do so are in great demand in industry. The required skill set includes the technical programming skills to access, process and analyze a large variety of data sets, and the ability to interpret and communicate these results to others. Anyone with these abilities will provide benefit to their organization regardless of their position. This course presents the essentials of this skill set.

Professor Carter     M/Th | 12:30 PM - 1:50 PM

**MA 347 Data Mining** (Pre-Req: [MA 252](#))

*Context and Perspectives: Scientific Inquiry*

This course will introduce participants to the most popular data-mining techniques, with an emphasis on getting a general understanding of how the method works, how to perform the analysis using suitable available software, and how to interpret the results in a business context. Topics will include linear regression models, logistic regression models, association rules analysis (also known as market basket analysis), cluster analysis, k-nearest neighbors, decision tree analysis, and Naïve Bayes. Additional techniques may be introduced if time allows.

Professor Giansiracusa     Th | 8:00 AM - 10:50 AM

**MA 352 Mathematical Statistics** (Pre-req: [MA 233](#) and [MA 263](#))

This course covers calculus-based mathematical statistics intended for upper-level undergraduate students in the mathematical sciences. The goal is to provide a solid foundation in theoretical statistical inference, which includes the theoretical aspects of estimation theory and hypothesis testing procedures. Upon completion of this course, students are expected to understand and apply basic concepts in mathematical statistics. In particular, students will study concepts in distributions and convergence, moment methods, estimations and test of statistical hypothesis.

Professor Lautier     M/W | 9:30 AM - 10:50 AM

**MA 357 Mathematical Theory of Interest** (Pre-req: [MA 139](#) or [MA 139L](#))

The theory of interest addresses the critical financial question of determining the value of a stream of cash flows. This is a problem-solving intensive course aimed at preparing the highly motivated student for the Society of Actuaries Exam FM. Emphasis is placed on learning efficient and effective techniques for solving interest theory problems.

Professor Roth      T/F | 9:30 AM - 10:50 AM

**MA 380 Introduction to Generalized Linear Models and Survival Analysis in Business** (Pre-Req: [MA 252](#))

*Context and Perspectives: Scientific Inquiry*

The course is designed for students interested in analyzing data with advanced regression modeling. It introduces generalized linear models (GLMs) and survival analysis with a focus on business applications. It includes GLMs with various linking functions: logistic models, Poisson models, and others. It particularly emphasizes the applications of these functions in real world data analysis and includes the use of professional statistical packages. Survival analysis is an important method for analyzing hazard and survival time in areas such as health care, finance, marketing and management. The course will focus on applications of survival models and the interpretation of simple survival models using Kaplan-Meier curves.

Professor Schirmacher      T/F | 9:30 AM - 10:50 AM

**MA 380 Introduction to Generalized Linear Models and Survival Analysis in Business (Honors)** (Pre-Req: [MA 252](#))

*Context and Perspectives: Scientific Inquiry*

The course is designed for students interested in analyzing data with advanced regression modeling. It introduces generalized linear models (GLMs) and survival analysis with a focus on business applications. It includes GLMs with various linking functions: logistic models, Poisson models, and others. It particularly emphasizes the applications of these functions in real world data analysis and includes the use of professional statistical packages. Survival analysis is an important method for analyzing hazard and survival time in areas such as health care, finance, marketing and management. The course will focus on applications of survival models and the interpretation of simple survival models using Kaplan-Meier curves.

Professor Schirmacher      T/F | 11:00 AM - 12:20 PM

2026 Spring Math Course Offerings									
Time	Monday		Tuesday		Wednesday		Thursday		Friday
8:00 - 9:20	MA 131-1	Calc. I	MA 107L-1	Applied Calc. w/Lab	MA 131-1	Calc. I	MA 347-1	Data Mining	MA 107L-1
	MA 214-3	Intrm. Applied Stats	MA 139-1	Calc. II	MA 214-3	Intrm. Applied Stats	MA 139-1	Busr. Stats	MA 139-1
			ST 113-5	Busr. Stats			ST 113-9		ST 113-5
9:30 - 10:50	MA 131L-1	Calc. I w/Lab	MA 215-1	Sport Analytics	MA 131L-1	Calc. I w/Lab	MA 107L-1	Applied Calc. w/Lab	MA 215-1
	MA 214-4	Intrm. Applied Stats	MA 357-1	Math Theory of Interest	MA 214-4	Intrm. Applied Stats			MA 357-1
	MA 252-1	Regression Analysis	MA 380-1	Applied Calc. Intro to GL Models	MA 252-1	Regression Analysis			MA 380-1
	MA 352-1	Math Stats	ST 113-1-H	Busr. Stats	MA 352-1	Math Stats			ST 113-1-H
11:00 - 12:20	MA 105L-1	Math Found. w/Lab	MA 105P-1	Math Found. w/Prep	MA 105L-1	Math Found. w/Lab	MA 105L-1	Math Found. w/Lab	MA 105P-1
	MA 105P-1	Math Found. w/Prep	MA 107-1	Applied Calc.	MA 105L-1	Calc I w/Lab	MA 105P-1	Math Found. w/Prep	MA 107-1
	MA 235-1	Differential Equations	MA 380-2-H	Intro to GL Models	MA 131L-1		MA 235-1	Differential Equations	MA 380-2-H
	MA 255-1	Design of Experiments			MA 255-1		MA 255-1	Design of Experiments	
12:30 - 1:50	MA 105L-2	Math Found. w/Lab	MA 105-4	Math Found.	MA 214-2	Intrm. App. Statistics	MA 105L-2	Math Found. w/Lab	MA 105-4
	MA 105P-2	Math Found. w/Prep	MA 105P-2	Math Found. w/Prep	MA 233-1	Calculus III	MA 105P-2	Math Found. w/Prep	MA 105P-2
	MA 131-2	Calc. I	MA 107-2	Applied Calc.	MA 252-2	Regression Anal.	MA 131-2	Calc. I	MA 107-2
	MA 346-1	Data Science	ST 113-2-H	Busr. Stats	MA 105L-2	Math Found w/Lab	MA 346-1	Data Science	ST 113-2-H
2:00 - 3:20	MA 105-3	Math Found.					MA 105-3	Math Found.	
	MA 107-3	Applied Calc.					MA 107-3	Applied Calc.	
	MA 250-1	Data Visualization					MA 250-1	Data Visualization	
3:30 - 4:50	MA 105-5	Math Found.	MA 105-1	Math Found.	MA 105-5	Math Found.	MA 105-1	Math Found.	
	MA 105L-4	Math Found. w/Lab	MA 214-1-H	Intrm. Applied Stats	MA 105L-4	Math Found. w/Lab	MA 107L-2	Applied Calc. w/Lab	
	MA 107-4	Applied Calc.	MA 310-1	Actuarial Topics	MA 107-4	Applied Calc.	MA 214-1-H	Intrm. Applied Stats	
	MA 107L-2	Applied Calc. w/Lab	ST 113-6	Busr. Stats	MA 107L-2	Applied Calc. w/Lab	MA 310-1	Actuarial Topics	
							ST 113-6	Busr. Stats	
5:00 - 6:20	MA 105-6	Math Found.	MA 105-2	Math Found.	MA 105-6	Math Found.	MA 105-2	Math Found.	
	MA 105L-3	Math Found. w/Lab	MA 335-1	Financial Calc.	MA 105L-3	Math Found. w/Lab	MA 107L-3	Applied Calc. w/Lab	
	MA 107L-3	Applied Calc. w/Lab	ST 113-7	Busr. Stats	MA 107L-3	Applied Calc. w/Lab	MA 335-1	Financial Calc.	
							ST 113-7	Busr. Stats	
6:30 - 7:50					MA 105L-3	Math Found. w/Lab			
6:30 - 9:10				Busr. Stats					