MATH-11600 Win Lose or Draw

Why do people play games? Whatever the reason, games are a big piece of life. The world has played games for a long, long time - every time period, every culture. Students in this course will study games in various cultures. To better understand the games, students will study probability theory and its application to gaming. Applications include casino games, lotteries, racing, and wagering systems, among others. Some analytical tools that arise during the course are counting methods, expected values, combinatorics, probability, statistics, trees, gambler’s ruin, and distributions.

Win, Lose, or Draw is a team learning-based course where students work together on problems during class time. There is minimal lecture, which leaves ample time for discovery learning. Instead of a traditional textbook, this course uses a workbook to be completed by teams of students during class time. Students who are looking for a change of pace from their previous math courses may particularly enjoy this unique math experience.

Students will develop skills in
- teamwork
- effective communication
- creative problem solving
- counting strategies
- presentation

Majors from the following disciplines may particularly benefit from this course:
- Aviation
- Communication
- Fine Arts
- Humanities

MATH-11700 Storytelling with Data
Storytelling with Data is a multidisciplinary introduction to data analytics course that uses a project-based curriculum to provide students an intensive hands-on experience in the quantitative research process. Students are able to learn statistics in the service of their own interests. The curriculum allows students to work with existing data covering health, geography and earth science, government, business, education, genetics, and more. From existing data, students will be able to pose their own questions of interest and then use statistical software (e.g. SAS, R, Python, Stata, or SPSS) to turn raw data into useful information.

No prior experience with data or statistics is required for this course!

Students will develop skills in
• generating testable hypotheses
• understanding large datasets
• formatting, visualizing, and managing data
• conducting descriptive and inferential statistical analyses
• presenting results for expert and novice audiences

Majors from the following disciplines may particularly benefit from this course:
• Business
• Communication
• Criminal Justice
• Economics
• Environmental Science
• Nursing
• Political Science
• Psychology
• Sociology

Storytelling with Data is a part of the Passion Driven Statistics Project.

Storytelling with Data is a project-based course in which students complete mini projects throughout the course as applications of the mathematics they learn.

MATH-11500 Introduction to Mathematical Thinking
Introduction to Mathematical Thinking is a course where students learn the basics of discrete mathematics, a field which encompasses all branches of math that share a common feature of discrete rather than continuous structures. This course provides students with the strategies and tools that will help them think mathematically in order to solve problems in everyday life. Topics include set theory, mathematical logic, basic counting techniques, probability, and descriptive statistics.

This course truly is an introduction to mathematical thinking that shows up in everyday life and goes beyond what students may have seen in previous mathematics courses. During this course, students will learn

- **Mathematical Reasoning** which will help them be able to read, comprehend, and construct mathematical arguments
- **Problem Solving Skills** with a focus on solving counting problems, calculating probability and statistics, and analyzing algorithms
- **Mathematical Modeling for Real-Life Applications** especially when dealing with discrete structures
- **Consumer Mathematics** which will help students better understand taxes, inflation, interest, loans, etc.

Introduction to Mathematical Thinking is typically a lecture-based course in which students are given various real world examples to improve their learning of course material. This course helps to prepare students to take MATH 310 Discrete Mathematics.

Use this survey to learn more about these math courses: [https://bit.ly/lewismathgenedsurvey](https://bit.ly/lewismathgenedsurvey)