

2016

## MATH 116-01-02 Elementary Statistics

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# Math 116: Elementary Statistics Syllabus

## Instructor Information

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**Office Hours:** To be determined, check Canvas for details.

## Course Description

This course is an introduction to statistical thinking and its applications to a wide variety of areas. Topics include: statistical and visual methods for summarizing data, basic principles of probability, regression, and fundamentals of hypothesis testing and confidence intervals. Critical examination of the results of a statistical analysis is emphasized.

Mathematics is the study of patterns. It provides a unique way of investigating and understanding the world around us, using as its primary tools exploration, conjecture, and logical argumentation. In this course, by exploring rich mathematical problems, you will further develop your abilities to reason critically; to defend the correctness and validity of your conclusion; to present your results clearly in both written and oral forms; and to experience fresh perspectives on the nature of mathematics.

Math 116 is part of the Xavier Core Curriculum, which aims to develop people of learning and reflection, integrity and achievement, in solidarity for and with others. It addresses the following core learning objectives at the introductory level:

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**1a:** Students recognize and cogently discuss significant questions in the humanities, arts, and the natural and social sciences.

**2a:** Students find, evaluate, and logically convey information and ideas in written and oral presentations.

**2b:** Students evaluate problems using quantitative methods and arguments.

### Required Texts

Our textbook for this course is **DeVeaux, Velleman, and Bock (2013). *Intro Stats*, 4<sup>th</sup> Edition**. A new copy of the textbook with MyStatLab access is not necessary. However, all students are required to have access to some form of the text. Three copies are on reserve at the XU Library.

### About the Learning Environment

Students in Math 116 should expect a fun and active learning environment! However, with this structure comes great responsibility... you are expected to read. **Yes, read ahead, in a math class.**

Guided notes have been provided for you to use during the semester. These aren't required, however they may help you pick up on key messages and definitions in the readings. Since you are expected to have read ahead for the lecture and gained a basic understanding of the high-level ideas of a chapter, class time will be reserved for activities, practice problems, and deeper investigations of some statistical ideas.

Students are expected to be active and engaged participants in their learning for the course. Classroom citizenship is vital to ensuring success for all students. Respect your time, respect each other, and have fun!

## Attendance Policy

I expect all students to come to class prepared to learn and actively participate. However, if you plan to be absent please check Canvas for assignments, announcements, and etc.

## Computers and Software

We'll use StatCrunch for in-class work this semester to get hands-on experience with statistical analysis. A six-month license for StatCrunch can be purchased at [www.statcrunch.com](http://www.statcrunch.com) for \$12.

## Academic Honesty

You are encouraged to work together on homework problems and in-class activities, but the work you turn in must be your own (unless the assignment specifically states otherwise). Any act of academic dishonesty will result in a score of zero on the item in question. Subsequent offenses will result in an F in the class.

## Course Requirements

Your grade in this course will include:

1. **Reading Quizzes:** Certain chapters in the text will be assigned as required reading before class. During class, you'll take a short quiz over the material in those chapters. Any notes taken during your reading of the text can be used during the Reading Quizzes.
2. **Canvas Quizzes:** Online Canvas quizzes will be assigned after each chapter. These will consist of 5-10 multiple choice questions about the material in each chapter. Students can take the online Canvas quizzes twice, and the highest score will be recorded. Correct answers will be available after each quiz. These will be due before each Exam, and are intended to help you review.
3. **In-Class Activities:** In-class activities and sample problems will be used to reinforce concepts and introduce new ideas during the semester. These may be collected after class (but not always). In-class activities may be graded on completion, correctness, or

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both. “Classroom citizenship” is also included in this category. Points may be lost if a student repeatedly contributes negatively to the classroom environment and impedes on other student’s learning opportunities.

4. **Presentations:** Students will work in teams of 2-3 to prepare short presentations showing how a topic we’ve learned in the course is related to “real-life”. You’ll have the opportunity to sign up for a topic and a time slot during the first two weeks of class. More information will be provided later in the semester.
5. **Exams:** Two in-class exams will be given. Exam dates will not change, but material may be adjusted depending on our pace in the course.
6. **Final Exam:** The final exam in this course is scheduled for a day. All students must take the Final Exam at the scheduled time unless previous arrangements have been made.

All assignments must be readable, and when appropriate, all work must be shown to receive credit. No late work will be accepted, unless other arrangements have been made before the due date. All exams and in-class work (activities and reading quizzes) must be completed at the scheduled time. A missed exam or in-class work will result in a score of zero unless you contact me before class with a note from your advisor, physician, organization, or coach stating explicit reasons for your absence. Adjustments may be made in extraordinary circumstances.

### Grading Scale

Category	Weight
Reading Quizzes	10%
Online Quizzes	5%
In-Class Activities	35%
“Classroom Citizenship”	5%
Review Presentations	5%
Exam 1	12.5%
Exam 2	12.5%
Final Exam	15%

A final average of 90% guarantees an A-, 80% a B-, 70% a C-, and 60% a D-.

## Special Accommodations

If religious observance will cause a student to be absent from class or otherwise affect his or her ability to complete academic assignments, he or she must notify the instructor in advance and make necessary arrangements to complete the entire course.

Any student who feels they may need an accommodation based on the impact of a documented disability should contact the Learning Assistance Center at 513-745-3280 on the 5<sup>th</sup> floor of the Conaton Learning Commons (room 514) to coordinate reasonable accommodations.

## 10 Commandments for the Classroom

The commandments on the next page serve as our roadmap for good citizenship in the classroom. Students should hold each other accountable for following our 10 commandments.

- 1. Thou shalt have no other object of attention in the classroom.** No devices — phones, gadgets, computers, guns — or distractions; I am a jealous and wrathful instructor.
- 2. Thou shalt honor thy fellow students.** They are also struggling, growing, with opinions always changing, and with perspectives always in transition. Be kind and patient with them, and yourself. In discussion, be sensitive to the feelings of others, slow to be offended and quick to not offend, though do not censor yourself. Try to use “I” statements, speaking from your own experience, and speak your mind knowing that all controversial arguments can be made with tact, humility, and sensitivity to others.
- 3. Thou shalt assume the best intentions of the instructor and fellow students.** Take what is said in the classroom with interpretative charity — assuming all speak in earnest and in good faith — though treat what is said with a critical eye. We are all in this together and we all want to “do the right thing” by each other.

- 4. Thou shalt not covet thy neighbor's work.** But feel free to consult with them on notes and materials, share feedback, look at each other's drafts, and so forth. Attend to the customs and rules of proper citation. Put things in your own words, and if you use the words of others, honor them by citing them.
- 5. Honor the work of the authors.** You do so by reading the assigned materials and appreciating their arguments, but also by raising objections, comments, and questions. On class days you shall participate; outside of class, you shall labor by reading.
- 6. Thou shalt ask questions for the benefit of the good and welfare of the class.** Ask away about issues or substance of the class — no question is dumb. On procedural matters, consult the syllabus first and the professor when appropriate.
- 7. When all else fails, follow directions.** Consult the syllabus, the assignment specifics, and other missives sent by the instructor. See Commandment #6.
- 8. If thou speaks too much, step back.** If thou speaks too little, step up! Be mindful of your own contribution balanced with the needs of your fellow students. Don't dominate the conversation, but don't hesitate to contribute. Assume that if you have a question on the material, others are thinking of it as well, so do them a favor and ask!
- 9. Thou shalt figure out a goodly system to take notes.** The classroom is not a passive arena — all discussions, videos, lectures, and chalkboard notes are important grist for the mill of our common learning. If you want, record the lectures and take notes. After each session, ask yourself what you learned.
- 10. Thou shalt be an active agent in your own learning.** Ultimately, you are responsible for your own learning. Be resourceful — if the classroom experience is difficult or not useful, or if the experience is not working for you, consult with the instructor who wants to help (see Commandment #3). Approach the instructor with your concerns, issues, and questions sooner than later.

Source: Elliot Ratzman, Temple University.