

MATH232: Elementary Statistics

College of Graduate and Continuing Studies, Norwich University

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Course Description

MATH232 Elementary Statistics- 3 quarter credits

Elementary Statistics is a course that covers the study of frequency histograms, averages and standard deviations, normal curve, probability, decision-making, sampling techniques, testing hypotheses, chi-square, t-distributions, correlation and linear regression. This course is valuable for those who plan to enter teaching.

Prerequisite: A college level mathematics course or equivalent as determined by departmental placement testing or consent of Program Director.

Course Outcomes

At the end of this course, students will be able to:

- Understand statistical thinking
- Demonstrate statistical literacy
- Use real data to solve statistical problems
- Use technology tools to develop conceptual understanding and analyze data
- Analyze, synthesize and critically evaluate information
- Apply logic to solve problems

Weekly Outline

Every week has a prescribed checklist of activities required to successfully complete the lesson. Follow this checklist, in the specified order, to complete each lesson.

Week	Topic	Requirements
Week 01	Data Collection	<ol style="list-style-type: none"> 1. Required reading 2. Lecture 3. Videos 4. Discussion 5. Assignment 6. Testing Concepts 7. Quiz
Week 02	The Normal Distribution Model, Scatterplots, Correlation and Linear Regression	<ol style="list-style-type: none"> 1. Required reading 2. Lecture 3. Videos 4. Discussion

		<ul style="list-style-type: none"> 5. Assignment 6. Testing Concepts 7. Quiz
Week 03	Probability Rules, Discrete Random Variables, and the Binomial Distribution	<ul style="list-style-type: none"> 1. Required reading 2. Course evaluation 3. Lecture 4. Videos 5. Discussion 6. Testing Concepts 7. Assignment 8. Quiz
Week 04	Gathering Data: Sampling and Experimental Design	<ul style="list-style-type: none"> 1. Required reading 2. Lecture 3. Videos 4. Discussion 5. Testing Concepts 6. Midterm exam
Week 05	Sampling Distribution Models, Confidence Interval and Tests of Significance for One Population Mean	<ul style="list-style-type: none"> 1. Required reading 2. Lecture 3. Videos 4. Discussion 5. Assignment 6. Testing Concepts 7. Quiz
Week 06	Confidence Interval and Tests of Significance for Two Population Means	<ul style="list-style-type: none"> 1. Required reading 2. Lecture 3. Videos 4. Discussion 5. Assignment 6. Testing Concepts 7. Quiz
Week 07	Confidence Intervals and Tests of Significance for Proportions	<ul style="list-style-type: none"> 1. Required reading 2. Course evaluation 3. Lecture

		4. Videos 5. Discussion 6. Assignment 7. Testing Concepts 8. Quiz
Week 08	Review & prepare for a comprehensive final exam	1. Required reading 2. Assignment 3. Final Exam; part 1 of 2 4. Final Exam part 2 of 2

Overall Course Design

You will be provided weekly commentaries/lectures and have [required readings](#) and discussion assignments. There will be a number of written assignments and exercises, which are explained thoroughly in the list of assignments.

In this course you have the opportunity to acquire knowledge and skills that will help you become effective, confident and focused in your learning.

Required Textbook and Software

Textbooks that are required are:

- Michael Sullivan, III (2018). *Fundamentals of statistics: informed decisions using data* 5th ed. Boston, MA: Pearson (ISBN-13 print: 978-0-13-450830-6, ISBN-13 loose leaf: 978-0-13-450999-0, ISBN-13 ebook: 978-0-13-450998-3).

The following software is required for this course.

- You must install a Norwich licensed version of Minitab Express on your computer using the instructions titled [Install Minitab Express](#) located in the Week 01 activities

See the [Required Readings](#) for all readings in this seminar.

Course Participation

As a student in this course, you have a number of responsibilities that will affect the level of learning you achieve. These responsibilities include:

1. Working actively to create a challenging and useful learning experience for yourself, your discussion group and the class as a whole
2. Encouraging and supporting the learning of each member of the class
3. Preparing and participating fully in discussions as well as group and/or class activities
4. Completing all assigned work on time or making prior arrangements if an absence or late submission is unavoidable

Discussion Groups

In this course, you will be assigned to a small discussion group. Each week your group will discuss one or two questions and your participation will be graded. The quality of your posts and those of your fellow students will create a lively discussion and ensure that a high level of learning occurs. You are expected to contribute at least three posts to each question every week. Your first post should be substantive (approximately 200-300 words) and it should be made by Wednesday at the latest. Complete this initial post before reading the initial posts of your group members. Be sure to answer the question and refer to the readings of that week, using correct citations. Your second two posts should be responses to posts of your fellow group members. Responses such as, "Good point," or, "I agree," are not sufficient. Your response posts should be substantive –ask questions, point out additional thoughts, etc. Disagreement and critical feedback are part of an academic classroom, as is respect for the diversity of opinion.

For more information about what is expected in regard to discussion posts, please review the [Grading Guidelines and Rubrics](#).

Online Etiquette

Please be professional in your communications. Use complete sentences as well as proper grammar and punctuation. Use the names provided in the participants list unless a student requests to be called by an acceptable nick name. Read out loud what you have typed *before* you post it. Because it is difficult to get to know your class mates in such a short time and because you do not get to see anybody's body language or facial expressions, you should avoid jokes, off-topic comments and personal comments about others.

Late Work

It is important that writing assignments and discussion posts be completed on time. Extensions of deadlines will be given only for serious extenuating circumstances. In the absence of such extensions, assignments may be downgraded for lateness at the discretion of the instructor.

Grades

The following table shows the graded assessment types contained within this course and the assigned weighting to determine the final course grade.

Graded Assessment Types	Points	Weights (%)
Weekly Discussions: 6 at 25 points each	150	15
Weekly Quizzes: 6 at 20 points each	120	12
Written Assignments: 8 at 25 points each	200	20
Midterm Exam (45 multiple choice)	180	18
Final Exam (350 pts)	Part 1: 60 multiple choice	35
	Part 2: 8 written problems	

Letter grades for the course will be based on the following grading scale.

Letter Grade	Percentage	Grade Point

A	93-100%	4.0
A -	90-92.9%	3.7
B +	87-89.9%	3.3
B	83-86.9%	3.0
B -	80-82.9%	2.7
C +	77-79.9%	2.3
C	75-76.9%	2.0
C -	73-74.9%	1.7
D +	70-72.9%	1.3
D	67-69.9%	1.0
D-	63-66.9%	0.7
F	0-62.9%	0.0

For complete information on the Grading Policy for Bachelor Degree students, please refer to the [CGCS Online Catalog](#) (Sub-Section of Catalog on "Grades.")

[Academic Honesty and the Norwich University Honor Code](#)

A student must submit work that represents the student's own original analysis and writing. Copying another's work is not appropriate. If the student relies on the research or writing of others, the student must cite those sources. Words or ideas that require citations include, but are not limited to all hardcopy or electronic publications, whether copyrighted or not, and all verbal or visual communication when the content of such communication clearly originates from an identifiable source. While students are encouraged to seek editing feedback, extensive revisions of one's work by another person is considered a lack of academic honesty, as it is representing another student's work as one's own.

For more information see:

[Academic Dishonesty](#)

[Academic Integrity](#)

[Norwich University Honor Code](#)

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[Section 504 of the Rehabilitation Act of 1973/ADA](#)

Please consult [Appendix H: University Policy - Section 504 of the Rehabilitation Act of 1973/Americans with Disabilities Act \(ADA\)](#) for instructions on obtaining an accommodation.

Disclaimer: Please note the specifics of this Course Syllabus are subject to change. Students are responsible for abiding by any such changes. Your instructor will notify you of any changes.