

Northern Virginia Community College

MTH 241-201A
10516

Statistics I (3 CR.)
Syllabus

Summer 2013

Instructor: Dr. Alexander Krantsberg

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Office: Bisdorf, Room AA 483

Class Time: Mondays and Wednesdays, 8:30AM - 12:10PM

Start Date 7/1/2013

End Date 8/11/2013

Classroom: Bisdorf, Room AA 456

Office hours: Mondays and Wednesdays, 4:30PM - 5:00PM, or by appointment

Important Dates

July 1	Classes begin
July 4	Independence Day (no classes)
July 9	Last day to drop with tuition refund or change to audit (Census Date)
July 25	Last day to withdraw without grade penalty
August 5 – August 10	Final Week of Classes
August 7	Final Exam

Course Content

(visit <http://www.nvcc.edu/academic/coursecont/summaries/MTH241.pdf> for details)

Course Description

MTH 241 – Statistics I presents descriptive statistics, elementary probability, probability distributions, estimation, and hypothesis testing.

Course Purpose

This course is to provide you with the necessary abilities in statistics and probability to understand the results of statistical studies and to perform descriptive and basic inferential studies within your areas of interest. Emphasis will be placed upon the use of the calculator and the computer to perform statistical computations.

Prerequisites

MTH 152, or MTH 163, or MTH 182.

Course Objectives

After completion this course, you should be able to:

- Organize raw data into a frequency distribution.
- Compute measures of central tendency (means, median, modes) and interpret the results.
- Compute measures of variation (variances, standard deviations, quartiles) and interpret the results.
- Identify and graph symmetric and asymmetric distributions.
- Compute standard scores.
- Define the concept of probability.
- Compute probabilities of unions, intersections, and complements.
- Distinguish between the concepts of independent events and mutually exclusive events.
- Identify independent events and dependent events.
- Compute conditional probabilities.
- Compute probabilities with binomial and normal distributions.
- Determine probability distributions using random variables.
- Explain the differences between population means and variances and sample means and variances.
- Compute confidence intervals.
- Formulate null and alternative hypotheses.
- Compare and contrast z-tests and t-tests.
- Identify Type I and Type II errors.
- Use a statistical software package and graphing calculator to calculate sample means, standard deviation, and confidence intervals.
- Use a statistical software package to create appropriate graphs.

Major Topics

A. Introduction to Statistics

B. Descriptive statistics

1. Organizing and displaying data
2. Measures of central tendency
3. Measures of variance
4. Types of distributions

C. Introduction to Probability

1. Events and their Probabilities
2. Finding the probability of the Union and Intersection of Events
3. Conditional Probability
4. Independent Events

D. Random Variables and Their Distributions

1. Discrete Random Variables (Binomial Distribution)
2. Continuous Random Distributions (uniform, normal)
3. Computation with Normal Curves
4. Central Limit Theorem

E. Sampling Distribution of the Sample Mean

1. Random Samples
2. Mean and Standard Deviation of the sample mean

F. Confidence Intervals

1. Population Mean
2. The Difference of Two Population Means

G. Hypothesis Testing

1. Population Mean
2. The Difference of Two Population Means

Textbook

Elementary Statistics, 8th ed., by Bluman, ISBN: 978-0077460396

Calculator

This course requires a graphing device TI-83 or better. You can use Microsoft Excel for some assignments.

Grading Policy

Grading Categories

- Homework - 10%
- Quizzes - 15%
- Exams - 45 %
- Final Exam - 30 %
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Course Grade

The course grade will be a letter grade:

- A - 90%-100%
- B - 80%-89.9%
- C - 70%-79.9%
- D - 60%-69.9%
- F - below 60%

No audits are given in this class. **The last day to withdraw with refund is July 9, 2013. The last day to withdraw without grade penalty is July 25, 2013.** You are responsible for doing all paperwork before these last dates.

Attendance:

It is very important to attend this class. If you miss no more than one class, your lowest grade on homework, quizzes, or exams will be dropped. My experience shows that regular attendance and active class participation, in most cases, results in a passing grade.

Grading Assignments

Homework: Problems will be assigned for every section covered in class. The homework is due the following week of a class. Do not forget to put your name, the text book section, pages, and the problem numbers.

Note: If your average grade on the chapter exams is more than 70%, you will get a 5% extra credit for your homework.

Quizzes: We have quizzes on most classes when there is no exam. You can make up two quizzes.

Exams: There will be three exams, one hour each.

The tentative schedule for the exams is below.

Exam 1 July 10

Exam 2 July 22

Exam 3 August 5

Please let me know in advance if you are not able to attend the class on any of these days. You may make up Exam 1 or Exam 2 during two weeks after the exam. It is your responsibility to schedule the make-up exam with me.

Final Exam

The final exam is scheduled for **Wednesday, August 7, 2013 from 8:30AM to 12:10PM**. The exam will be comprehensive and cover all course material.
All students are expected to attend the final exam.

Exam Policy

You may not share calculators during exams or quizzes. You may not use cell phones as calculators during exams and quizzes.
Cheating – receiving or giving unauthorized help- will result in a score of 0 on that exam.

Classroom Behavior

You should silence cellular phones. No texting during class time.

Inclement Weather or Other Emergency Events

If the college is closed, a text alert will be sent to cell phones registered on NOVA Alert, a notice will be posted on the College's website www.nvcc.edu/emergency. You can also call the College Call Center at 703.323.3000.

Special Needs and Accommodations

Please address with me any special problems or needs at the beginning of the semester. If you are seeking accommodations based on a disability, you must provide a disability data sheet, which can be obtained from the counselor for special needs, who is located in Bisdorf (AA) 229, phone (703) 933-1840. More information may be found at the following website: <http://www.nvcc.edu/current-students/disability-services/index.html>

Veterans (Active Duty and Reserve)

Please contact me early to request schedule accommodations for missed classes.

Accommodation can be made if you provide me with the reason on a case-by-case basis. If missing more than one day consecutively, then I will discuss how to study the lessons that you will miss.

Course Outline

(Subject to change at any time)

The orange numbered problems in the text are modeled by examples in the text. You should always do them; refer back to the model if necessary. **Eoo** means every other odd: 1,5,9, etc.

Week	Date of Class	Chapter	Assignment (due the following week)
1	07/01	1 and 2	pp.26-28: 4, 6, 7, 8, 9, 10(a,b,c), 12, 14(a,b), 17(a,b) pp.46-47: 3(a,d),7, 9 pp.61-63: 9, 10 pp.84-86: 5, 10
1	07/03	3	pp.118-121: 1, 2, 14, 30 pp.137-141: 11, 20, 32*, pp.153-155: 9, 10, 12(a,c,e), 15, 21 pp.166-167: 1, 8
2	07/08	4	pp.195-198: 4, 10-14, 17, 21 pp.204-206: 2, 6, 12, 21
2	07/10	5	pp.220-224: 3, 10, 33, 40 pp.233-235: 1, 4, 12, 13(a,c,d,f,h,i), 25, 27(a,d,f,g) pp.258-259: 6, 8, 10, 14,15,19, 26 pp.267-268: 1, 5, 15
3	07/15	5, 6	pp.277-278: 1(a, c,i), 2(a,f), 5, 16, 27

			pp.311-313: 7, 8, 11, 12, 17, 18, 27, 30, 35, 36, 41, 46 pp.325-328: 5, 10, 35, 37
3	07/17	6	pp.338-340: 9, 22 pp.346-347: 1(a, c, e), 5 *pp.366-367: 9(a), 11, 16, 21
4	07/22	7	pp.366-367: 9(a), 11, 16, 21 pp.374-375:5, 8
4	07/24	8	pp.412: 12(a,b,c), 13
5	07/29	8	pp.422-424: 3, 7, 13, 15(a,b,c) pp.434-435: 3(a,b,c), 4(a,b,c), 9
5	07/31	9	pp.479-481: 5, 9, 14 pp.487-489: 1, 6, 17 pp.500-501: 5
6	08/05	1-9	Review
6	08/07	Final Exam	

Note: The syllabus is subject to change.