

Course Information Sheet

Course: Prairie State College Math 153-02/Bus 240-02 - Probability & Statistics - 4 Credit/Contact Hours - Spring 2017

IAI Code: M1 902, BUS 901

Delivery Mode: Face-to-face

Meeting Time: TTh 10:00am-11:40am

Meeting Place: Room 4270

Instructor: Steve Kifowit, Rm 2305, Ph. (708) 709-3954

Email: skifowit@prairiestate.edu

Web: <http://stevekifowit.com>

Office Hours: MW 10am-12pm, TTh 9:30am-10am, or by appointment

Text: *Elementary Statistics*, 12th edition (2014); Triola

Course Description: This is an introductory course in probability and statistics. Topics covered include frequency distributions, measures of central tendency, measures of dispersion, standard deviation, correlation, elementary probability, regression lines, statistical inference, the binomial distribution, the normal distribution, the student t distribution, and the chi-square distribution. Comprehensive projects are assigned. Students who successfully complete this course cannot also receive credit for Math 115.

Course Prerequisite: Math 151 (College Algebra) with a C or better or equivalent.

Course Goals/Objectives:

General Education Objectives---The mathematics component of general education focuses on quantitative reasoning to provide a base for developing a quantitatively literate college graduate. Every college graduate should be able to apply simple mathematical methods to the solution of real-world problems. A quantitatively literate college graduate should be able to:

- a.) interpret mathematical models such as formulas, graphs, tables and schematics, and draw inferences from them;
- b.) represent mathematical information symbolically, visually, numerically and verbally;
- c.) use arithmetic, algebraic, geometric and statistical methods to solve problems;
- d.) estimate and check answers to mathematical problems in order to determine reasonableness, identify alternatives and select optimal results; and
- e.) recognize the limitations of mathematical and statistical models.

Specific Course Objectives---In addition to meeting the general education objectives, every successful Math 153 student should be able to:

- 1.) organize, present, and describe quantitative data;
- 2.) solve computational and application problems involving basic probability theory;
- 3.) solve computational and application problems involving basic statistical theory;
- 4.) effectively apply knowledge of statistics through projects involving data collection and analysis; and
- 5.) use statistical software and computers to develop solutions and evaluate results in statistical analysis.

Attendance Policy: Regular class attendance is an essential component of successful learning. Students are responsible for prompt attendance and participation in all class meetings. **If you miss class, you will not be allowed to make up any tests, quizzes, or assignments that you may have missed.** All material covered in class is the student's responsibility.

Grading: Your grade will be based on your performance on three 100-point tests, a 150-point final exam, approximately ten 10-point quizzes, and miscellaneous problems and projects (25-50 points). Very roughly, tests

count for about 52% of your grade, the final exam counts for about 26%, and quizzes count for about 17%. The grading scale is as follows:

A --- 88% and above
B --- 77% - 87%
C --- 66% - 76%
D --- 55% - 65%
F --- below 55%

You may estimate your current grade at any time during the semester by computing the following percentage: $100\% * (\text{Total points accumulated}) / (\text{Total points possible})$. Please feel free to discuss your grade with me at any time during the semester. Throughout the semester, grades will be posted online in D2L.

Homework: Homework problems will be assigned on a daily basis. Your work will not normally be collected, but we will often discuss homework problems in class. If any suggested homework problems are to be submitted for grading, you will be given advance notice of at least one class period. Keep up to date on your homework! Homework problems will often show up on quizzes and tests.

Quizzes: Be prepared for an in-class, 10-point quiz on **each Thursday**, unless a test is scheduled. No make-up quizzes will be given. Your lowest quiz score will be dropped at the end of the semester.

Project: Sometime during the 2nd half of the semester, you will be assigned a comprehensive project that will involve collecting, analyzing, describing and interpreting data and drawing conclusions from it. **Your project must involve both descriptive and inferential statistics.** You will work individually or in pairs. Each student must submit a unique project report. Details will be available later in the semester. The project will be worth 25 points.

Tests/Exams: Test problems will be similar to class examples, quiz problems, and homework problems. In addition to computational problems, tests may include multiple choice, true/false, short answer, and/or writing problems. You must show all work on all tests to receive full credit. **You must work individually on all tests.** No make-up tests will be given. At the end of the semester, your lowest test score will be replaced by two-thirds of your final exam score (if this helps you).

Final Exam: The final exam is comprehensive and will be worth 150 points toward your final grade. The final exam counts for more than 25% of your grade. Please take it seriously! See the lecture pace for the date of the final exam.

Academic Honesty: In a Math class, it is extremely important that the work you present to your instructor is genuinely something that you have produced. Relying heavily on other people and/or inappropriate technology can create a false sense of achievement that ultimately leads to failure when those resources are no longer available. Part of my role as your instructor is to communicate to you what resources are acceptable and appropriate. The use of inappropriate resources is a form of academic dishonesty. In general, the use of any technology or human help that allows students to simply present a problem and have the problem solved for them is prohibited. Please feel free to speak to me if you are not sure whether you are allowed to use a particular resource in doing the work for this class. There are serious consequences for submitting work that is not your own. Possible consequences include a zero score for the assignment, failure of the class, or expulsion from the college. All cases of academic dishonesty will be reported to the dean.

Calculators: The TI-83/84 Graphing Calculator is required for this course. We will also make use of computer software such as Microsoft Excel, R, Maxima, GeoGebra, or StatDisk (possibly bundled with your text).

Phones/Tablets/Laptops: Electronic devices may be used for notetaking and computing during lectures, but they may not be used on in-class tests and quizzes. These devices must be silenced and put away during tests and quizzes. Students in special circumstances who require their phones to be readily available must discuss their situations with the instructor.

Misc. information:

- 1.) The last day to withdraw from the course is April 13. For refund information, refer to the spring schedule book. If you wish to withdraw from the course, it is your responsibility to do so. Any student who does not come to class, yet fails to withdraw, will be given the FW grade.
- 2.) You are expected to spend roughly 12 hours per week on coursework - 4 hours in class and 8 hours out of class. If you cannot make this commitment, you may want to reconsider taking this course.
- 3.) **The grading scale will be strictly adhered to!** Final percentages will be rounded to the nearest whole number.
- 4.) This is a fast-paced course! We will cover much material in little time. You are responsible for thoroughly reading the textbook and keeping up with the assigned material.

Disability Statement: Any student needing to arrange reasonable accommodations for a documented disability (learning, physical, psychological, or other) should contact the Disability Services Office (Room 1192).

Student Veterans Statement: Veterans and those currently serving in the Armed Services may be eligible for various benefits. Information and support are available in the Student Veterans Center (Room 1240). Online information is available at <http://prairiestate.edu/student-services/veterans-services/index.aspx>.

Religious Observance Accommodation: Prairie State College is required to excuse students who need to be absent from class, examinations, study, or work requirements because of their religious beliefs, and provide students with a make-up opportunity, unless to do so would unreasonably burden the institution. Students must notify their instructor well in advance of any absence for religious reasons. If you require special accommodations for observance of a religious holiday, please notify me during the first week of the term.

Course information, including tests, quizzes, and answer keys, can be found at
<http://stevekifowit.com/classes/m153.htm>



Lecture Pace

Math 153-02 - Probability & Statistics

Week 1	Jan 17 & Jan 19	Course information; Chapter 1	Statistical thinking, Types of data, Collecting data
Week 2	Jan 24 & Jan 26	Sections 2.1, 2.2, 2.3, 2.4	Frequency distributions, Statistical graphs
Week 3	Jan 31 & Feb 2	Sections 3.2, 3.3, 3.4	Measures of center, Variation, Boxplots
Week 4	Feb 7 & Feb 9	Sections 4.1, 4.2; Review; Test 1	Probability basics
Week 5	Feb 14 & Feb 16	Sections 4.3, 4.4, 4.5, 4.6	Addition & multiplication rules, Conditional probabilities, Counting
Week 6	Feb 21 & Feb 23	Chapter 5	Probability distributions, Binomial distributions, Poisson distributions
Week 7	Feb 28 & Mar 2	Sections 6.1, 6.2, 6.3	Normal distributions
Week 8	Mar 7 & Mar 9	Sections 6.4; Review; Test 2	Sampling distributions and Estimators
Week 9	Mar 14 & Mar 16	Spring Break	
Week 10	Mar 21 & Mar 23	Sections 6.5, 7.1, 7.2	Central Limit Theorem, Confidence intervals
Week 11	Mar 28 & Mar 30	Sections 7.3, 7.4	Confidence intervals
Week 12	Apr 4 & Apr 6	Sections 8.1, 8.2	Intro to hypothesis testing
Week 13	Apr 11 & Apr 13	Sections 8.3, 8.4, 8.5	Hypothesis testing
Week 14	Apr 18 & Apr 20	Review/Catch-up, Test 3	
Week 15	Apr 25 & Apr 27	Sections 9.2, 9.3, 9.4, 9.5	Inferences from two samples
Week 16	May 2 & May 4	Sections 10.1, 10.2, 10.3	Correlation, Regression
Week 17	May 9 & May 11	Review/Catch-up	
*****	Thursday, May 18	Final Exam — 10am-11:50am	

*** April 13 is the last day to withdraw ***

Suggested Homework Problems
PSC Math 153-02
Spring 2017
(Subject to changes)

Unless otherwise stated, do only the odd-numbered exercises.

Section 1.2 #'s 9,11,13,17,19,25,27,29,33,35

Section 1.3 #'s 5-11,13-19,21-27,31

Section 1.4 #'s 5-7,9-19,21-25

Section 2.2 #'s 5-19,23,27,29

Section 2.3 #'s 5-8(all),9,13,17,

Section 2.4 #'s 5,9,11,13,15,17,21-24(all)

Section 3.2 #'s 5,9,11,15,19,21,23,29

Section 3.3 #'s 5,7,11,15,21,35,43

Section 3.4 #'s 5,7,9,13,15,17-27,29,31

Section 4.2 #'s 5,21-24(all),27,29,31,33,37,39,43,46

Section 4.3 #'s 1,3,13,15,17-20(all),27,29,31

Section 4.4 #'s 5,7,11,13,15,21,27

Section 4.5 #'s 5,7,9,13,19-22(all),29,33

Section 4.6 TBA

Section 5.2 #'s 7,9,15,17,19,21

Section 5.3 #'s 29,31,33,35

Section 5.4 #'s 11,13,15,17

Section 5.5 #'s 5,7,9,11,13

Section 6.2 #'s 9-37(odd)

Section 6.3 #'s 5-11(odd),21,23,25,27,32

Section 6.4 #'s 11,13,15

Section 6.5 #'s 7,9,11,15

Section 6.6 TBA

Section 6.7 TBA

Section 7.2 #'s 5,7,9,11,15,21,23,25,27,29,31

Section 7.3 #'s 11,13,17,19,21,25,27,29,31,35,37

Section 7.4 #'s 5,7,11,13,17

Section 8.2 #'s 5-8(all),13,14,16,17,19,21

Section 8.3 #'s 11,15,17,19,23,25,27

Section 8.4 #'s 11,13,19,21,23,31

Section 8.5 TBA

Sections 9.2-9.5 TBA

Section 10.2 #'s 13,15,19,24

Section 10.3 #'s 5,7,13,15,19,24