



---

## MATH 1342: Statistics

CRN 88962 – Spring 2016 (Regular Term)

Online Instruction | In-Person Final Exam

3 hour lecture course / 48 hours per semester/ 16 weeks

Textbook: *Elementary Statistics, A Step by Step Approach*, 9<sup>th</sup> Edition, Allan G. Bluman

ISBN-13: 978-0-07-353498-5

**First Day of Class:** Tuesday, January 19, 2016

**Instructor:** Kimber Kaushik

**Contact Information:** [kimber.kaushik@hccs.edu](mailto:kimber.kaushik@hccs.edu), 713/718-5733

**Office Location:** Rm. 359 H at Northwest College's Katy Campus

**Office Hours:** Monday & Wednesday 11 am – 12:30 pm; Tuesday 12:30 – 1 pm & 4 – 5 pm; Thursday 12:30 – 1 pm

**DE Student Services:** The [Distance Education Student Handbook](#) contains policies and procedures unique to the DE student. Students should have reviewed the handbook as part of the mandatory orientation. It is the student's responsibility to be familiar with the handbook's contents. The handbook contains valuable information, answers, and resources, such as DE contacts, policies and procedures (how to drop, attendance requirements, etc.), student services (ADA, financial aid, degree planning, etc.), course information, testing procedures, technical support, and academic calendars.

**Course Description:** Topics include histograms, measures of central tendency and variation, probability, binomial and normal distributions and their applications, confidence intervals, and tests of statistical hypotheses.

**Prerequisites:** MATH 1314 or the equivalent or an acceptable placement test score.

**Course Goal:** This course is intended for students primarily in health sciences and business rather than math or science majors. It consists of concepts, ideas, and applications of statistics rather than a theory course.

### Course Student Learning Outcomes (SLO):

- Understand basic concepts and vocabulary for probability and statistics.
- Organize, analyze, and utilize appropriate methods to draw conclusions based on sample data by using tables, graphs, measures of central tendency, and measures of dispersion.
- Collect univariate and bivariate data, and interpret and communicate the results using statistical analyses such as confidence intervals, hypothesis tests, and regression analysis.
- Calculate probabilities for binomial and normal probability distributions and find specific values for binomial and normal probabilities.
- Successfully perform testing of hypotheses using Standard Normal values and  $t$ -distribution values.

**Learning Objectives:** Students will

- 1.1 Demonstrate knowledge of statistical terms.
- 1.2 Understand the difference between descriptive and inferential statistics.
- 1.3 Identify types of data, measurement level of variables, and four basic sampling techniques.
- 2.1 Construct the relative frequency table from a given set of ungrouped data.

- 2.2 Know and use the different graphs (histogram, frequency polygon, Ogives, Pareto, and pie) to present data.
- 2.3 Compute the mean, median, mode, midrange, range, variance, and standard deviation.
- 2.4 Identify the various measures of position such as percentiles, deciles, and quartiles.
- 2.5 Find the total number of outcomes in a sequence of events using a tree diagram and the multiplication rule.
- 3.1 Understand the use of permutation and combination rules.
- 3.2 Determine sample spaces and find the probability of an event using classical probability.
- 3.3 Find the probability of compound events using addition and/or multiplication rules.
- 3.4 Find the conditional probability of an event
- 3.5 Construct a probability distribution for a random variable
- 3.6 Find the mean, variance, and expected value for a probability distribution function.
- 3.7 Find the mean, variance, and standard deviation for a binomial distribution.
- 3.8 Identify the properties of the normal distribution.
- 3.9 Find a confidence interval for the mean when  $s$  is known or  $n > 30$ .
- 3.10 Determine the minimum sample size for finding a confidence interval for the mean.
- 3.11 Find a confidence interval for the mean when  $s$  is unknown and  $n < 30$ .
- 3.12 Find a confidence interval for a proportion.
- 3.13 Determine the minimum sample size for finding a confidence interval for a proportion.
- 3.14 Find a confidence interval of the variance and standard deviation.
- 4.1 Find the exact probability for  $X$  successes in  $n$  trials of a binomial experiment.
- 4.2 Find the area under the normal curve, given various  $z$  values.
- 4.3 Find probabilities for a normally distributed variable by transforming it into a standard normal variable.
- 4.4 Find specific data values for given percentages using the standard normal distribution.
- 4.5 Apply the central limit theorem to solve problems involving sample means.
- 4.6 Use the normal approximation to compute probabilities for a binomial variable.
- 5.1 Understand the definitions used in hypothesis testing.
- 5.2 State the null hypothesis and alternative hypothesis.
- 5.3 Understand the terms: type I error and type II error, test criteria, level of significance, test statistic.
- 5.4 Find the critical values for the  $z$ -test,  $t$ -test, and  $c$ -test.
- 5.5 Test hypothesis for means (large and small sample), proportions, variance, and standard deviation.
- 5.6 Draw a scatter plot for a set of ordered pairs.
- 5.7 Compute the correlation coefficient and the coefficient of determination.
- 5.8 Compute the equation of the regression line by using the least square method.
- 5.9 Test a distribution for goodness of fit using chi-square.
- 5.10 Test independence and homogeneity using chi-square.
- 5.11 Use the one-way ANOVA technique to determine if there is a significant difference among three or more means.
- 5.12 Determine the difference in means using the Scheffé or Tukey test if the null hypothesis is rejected in the ANOVA.

### **Core Objectives**

Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum must ensure that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in life. Through the Texas Core Curriculum, students will gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.

Students enrolled in this core curriculum course will complete a research project or case study designed to cultivate the following core objectives:

**Critical Thinking Skills:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.

**Communication Skills:** to include effective development, interpretation and expression of ideas through written, oral and visual communication.

**Empirical and Quantitative Skills:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.

## Calendar

Unit One Test	In Connect Math	Available February 8 Due February 16
Unit Two Test	In Connect Math	Available March 7 Due March 21
Unit Three Test	In Connect Math	Available April 11 Due April 18
Final Exam	In person, at one of three testing locations in Houston	Take on May 6 , 7 or 8

**Connect Math:** All assignments EXCEPT THE FINAL EXAM are accessed via the online program Connect Math (available at [www.connectmath.com](http://www.connectmath.com)). On the first day of class, you'll find details about registering for Connect Math in the "Connect Math" topic on the Eagle Online home page for this course.

**Textbook:** An electronic version of the textbook, *Elementary Statistics, A Step by Step Approach* (9<sup>th</sup> Edition, by Allan G. Bluman) comes with your Connect Math subscription.

If you want a hard copy of the textbook, you can purchase it at any HCC campus bookstore or online through many book ordering websites. If you buy the book on campus, it will come packaged with an access code for Connect Math. Please note that if you purchase the textbook elsewhere, it may not come packaged with Connect Math; in this case, you will have to pay separately for a Connect Math subscription.

**Calculator Use:** You will need a scientific or graphing calculator in this course.

**SmartBook:** Connect Math's SmartBook is an adaptive eText which helps you study in a deeper, more efficient manner. When you are ready to start a new chapter, launch the SmartBook, and preview and outline the chapter as prompted. Next, read one section and practice before beginning the homework assignments associated with the section. Finally, when you finish a chapter, use the recharge feature of the SmartBook to review the content.

**Section Video Tutorials:** After you finish reading a textbook section, watch the associated video tutorials in Connect Math. To find the video tutorials, just click Connect Math's Resources tab, then click the Videos tab. You'll see drop-down menus for the textbook chapters and sections. Once you choose a chapter and section, you'll see icons for the various videos for that section. You can view each video by clicking its icon, then clicking the forward arrow.

**Homework Assignments:** In Connect Math, you'll find a homework assignment for each section of the textbook covered in class.

**Unit Test Reviews:** To prepare for each unit test, complete the associated unit test review in Connect Math. Unit test reviews are graded as homework assignments, and you must score at least 80% on the unit test review to access the corresponding unit test.

**Unit Tests:** There are three unit tests, each accessed in Connect Math.

**Final Exam Review:** The final exam review, worth five bonus points on the final exam, will be available in Connect Math three weeks before the final exam. Make sure you can do the problems with no other technology than a scientific or graphing calculator since you will not have computer access during the final exam.

**Mastering the Material:** I suggest that you record your work in a math notebook. Be neat and highlight tricky problems. Writing your work in an organized manner helps you think clearly and gives you a record of your thought. You can then review the material as you study for unit tests and the final exam.

As the course progresses, I also suggest that you make study cards with important definitions and problem-solving techniques. I'll provide a formula sheet with the final exam, so you won't need to memorize formulas.

Free in-person tutoring is available at many HCC campuses. Another option is to use HCC's free Online Tutoring Services, available at [www.hccs.askonline.net](http://www.hccs.askonline.net). Use your student ID or HCC e-mail address to create an account. Instructions, including a 5-minute video, are provided to make you familiar with the capabilities of this service. Of course, you are also welcome to visit or call me during my office hours.

**Final Exam Preparation:** First, study the cards you've made for each chapter and review your unit tests.

Next, complete the online final exam review, showing your work neatly in your notebook so you can review it right before you take the final exam. If you have trouble with the final exam review, you can discuss it in the "Let's Help One Another" forum in Eagle Online or work on the review with classmates in one of the HCC tutoring labs or libraries.

Finally, be sure to get a good night's sleep the night before the final exam. Review your study cards the night before and the morning of the final exam, and eat a meal with protein before exam time.

**Final Exam:** The final exam must be taken in person at a designated testing location in Houston at the end of the spring semester, on May 6, 7 or 8. If you live outside the Houston area, you need to inform me and arrange for proctored testing near you. Refer to the "Final Exam" topic on the Eagle Online home page for testing times and locations, and for more information about out-of-area testing.

You can earn up to five bonus points on the final exam by completing the final exam review in Connect Math.

#### MATERIALS NEEDED FOR TAKING THE FINAL EXAM:

- Sharpened #2 pencils
- Eraser (Hi-Polymer erasers by Pentel are recommended)
- Picture ID
- Course information: MATH 1342, CRN 88962, Professor Kimber Kaushik
- **Scientific or graphing calculator**
- **5" x 7" notecard**

When you arrive at a testing location, you must show your ID and provide the course information listed above. You'll be given a test booklet and a scantron form.

The paper-and-pencil exam lasts two hours, is closed-book, and no notes are allowed. **You will not have access to a computer during the final exam; instead, you must answer questions using your own graphing or scientific calculator. I'll provide the formulas and statistical tables that you'll need during testing.** All answers must be marked on the provided scantron form.

**Evaluation:** You can find your course average and individual assignment grades in the Connect Math Gradebook. Your course average will be calculated as follows:

- 20%: Homework average
- 50%: Unit Test average
- 30%: Final Exam

Your course grade is based on your course average as follows:

A: 90 – 100%, B: 80 – 89%, C: 70 – 79%, D: 60 – 69%, F: less than 60%

**Academic Honesty:** A student who is academically dishonest is, by definition, not showing that the coursework has been learned, and that student is claiming an advantage not available to other students. I am responsible for measuring each student's individual achievements and also for ensuring that all students compete on a level playing field. Thus, in our system, I have teaching, grading, and enforcement roles. You are expected to be familiar with the University's Policy on Academic Honesty, found in the catalog. What that means is: If you are charged with an offense, pleading ignorance of the rules will not help you. Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by College System officials

against a student accused of scholastic dishonesty. "Scholastic dishonesty": includes, but is not limited to, cheating on a test, plagiarism, and collusion.

Cheating on a test includes:

- Copying from another students' test paper;
- Using materials not authorized by the person giving the test;
- Collaborating with another student during a test without authorization;
- Knowingly using, buying, selling, stealing, transporting, or soliciting in whole or part the contents of a test not yet administered;
- Bribing another person to obtain a test that is to be administered.

Plagiarism means the appropriation of another's work and the unacknowledged incorporation of that work in one's own written work offered for credit.

Collusion mean the unauthorized collaboration with another person in preparing written work offered for credit. Possible punishments for academic dishonesty may include a grade of 0 or F in the particular assignment, failure in the course, and/or recommendation for probation or dismissal from the College System. (See the Student Handbook)

**Dropping/Withdrawing from the Course:** If you wish to drop the course without a grade, you must do so by Monday, February 1, 2016. If you do not log in to this course's Eagle Online shell or register for MyMathLab by February 1, you will be automatically dropped from the course.

If you feel that you cannot complete this course, you will need to withdraw from the course by Tuesday, April 5, at 4:30 pm. Before you withdraw from the course, please contact me to discuss why you feel it is necessary to do so. I may be able to provide you with suggestions that would enable you to complete the course. Your success is very important. Beginning in fall 2007, the Texas Legislature passed a law limiting first time entering freshmen to no more than **SIX** total course withdrawals **throughout** their educational career in obtaining a certificate and/or degree.

To help students avoid having to drop/withdraw from any class, HCC has instituted an Early Alert process by which I *may* "alert" you and HCC counselors that you might fail a class because of excessive absences and/or poor academic performance. It is your responsibility to visit with me or a counselor to learn about what, if any, HCC interventions might be available to assist you – online tutoring, child care, financial aid, job placement, etc. – to stay in class and improve your academic performance.

**Note that I may administratively withdraw you if you are inactive in the course between February 1 and April 5, but I will first attempt to contact you.**

Please read the section "Policies and Procedures" in the [DE Student Handbook](#) for more details about the withdrawal process.

**Repeat Course Fee:** The State of Texas encourages students to complete college without having to repeat failed classes. To increase student success, students who repeat the same course more than twice, are required to pay extra tuition. The purpose of this extra tuition fee is to encourage students to pass their courses and to graduate. Effective fall 2006, HCC will charge a higher tuition rate to students registering the third or subsequent time for a course. If you are considering course withdrawal because you are not earning passing grades, confer with me or your counselor as early as possible about your study habits, reading and writing homework, test taking skills, attendance, course participation, and opportunities for tutoring or other assistance that might be available.

**Student Course Reinstatement Policy:** Students have a responsibility to arrange payment for their classes when they register, either through cash, credit card, financial aid, or the installment plan. Faculty members have a responsibility to check their class rolls regularly, especially during the early weeks of a term, and reconcile the official class roll to ensure that no one is attending class whose name does not appear on it. Students who are dropped from their courses for nonpayment of tuition and fees who request reinstatement after the official date of record (OE Date) can be reinstated by making payment in full and paying an additional \$75 per course reinstatement fee. A student requesting reinstatement should present the registrar with a completed **Enrollment Authorization Form** with the signature of the instructor, department chair, or dean who should verify that the student has been attending class regularly. Students who are reinstated are responsible for all course policies and procedures, including attendance requirements.

### **HCC Policy Statement – ADA**

**Services to Students with Disabilities:** Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the Ability Services Office at his or her respective college at the beginning of each semester. Faculty members are authorized to provide only the accommodations requested by the Ability Support Services Office.

Persons needing accommodations due to a documented disability should contact the ADA counselor for their college as soon as possible. For questions, please contact Donna Price at 713.718.5165. To visit the ADA Web site, please visit [www.hccs.edu](http://www.hccs.edu) then click Future students, scroll down the page and click on the words Ability Information.

**Northwest College Ability Support Service Office**

**Katy Campus**

1550 Fox Lake Drive, Rm. 111  
Houston, TX 77084  
Phone: 713/718-5408  
Fax: 713/718-7990

**Spring Branch Office**

1010 W. Sam Houston Pkwy North  
Phone: 713/718-5422  
Fax: 713/718-5430

**HCC Policy Statement: Title IX**

HCC is committed to provide a learning and working environment that is free from discrimination on the basis of sex which includes all forms of sexual misconduct. Title IX of the Education Amendments of 1972 requires that when a complaint is filed, a prompt and thorough investigation is initiated. Complaints may be filed with the HCC Title IX Coordinator available at 713 718-8271 or email at [oi@hccs.edu](mailto:oi@hccs.edu).

Title IX of the Education Amendments of 1972 requires that institutions have policies and procedures that protect students’ rights with regard to sex/gender discrimination.

Information regarding these rights are on the HCC website under Students-Anti-discrimination. Students who are pregnant and require accommodations should contact any of the ADA Counselors for assistance.

It is important that every student understands and conforms to respectful behavior while at HCC.

Sexual misconduct is not condoned and will be addressed promptly. Know your rights and how to avoid these difficult situations.

Log in to [www.edurisksolutions.org](http://www.edurisksolutions.org). Sign in using your HCC student email account, then go to the button at the top right that says Login and enter your student number.

**EGLS 3 -- Evaluation for Greater Learning Student Survey System:** At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time near the end of the semester, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and department chairs for continual improvement of instruction. To evaluate your instructor, go to <http://www.hccs.edu/district/students/egls3/>.

**Administration Contact Information:**

**College - Level Math Courses**

Chair of Math	Jaime Hernandez	SW Campus	713-718-2477	Stafford, Scarcella, N108
- Secretary	Tiffany Pham	SW Campus	713-718-7770	Stafford, Scarcella, N108
Math Assoc. Chair	Roderick McBane	CE Campus	713-718-6644	San Jacinto Building, Rm 369
Math Assoc. Chair	Ernest Lowery	NW Campus	713-718-5512	Katy Campus Building, Rm 112

Math Assoc. Chair	Mahmoud Basharat	NE Campus	713-718-2438	Codwell Hall Rm 105
-------------------	------------------	-----------	--------------	---------------------

**Developmental Math Courses**

Chair of Dev. Math	Susan Fife	SE Campus	713-718-7241	Felix Morales Building, Rm 124
- Secretary	Carmen Vasquez	SE Campus	713-718-7056	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Marisol Montemayor	SE Campus	713-718-7153	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Jack Hatton	NE Campus	713-718-2434	Northline Building, Room 321

For issues related to your class, please first contact me. If you need to contact departmental administration, then contact the appropriate Associate Chair. If further administrative contact is necessary, then contact the appropriate Department Chair.