



**Division of Mathematics  
Mathematics Department**

<https://learning.hccs.edu/programs/mathematics>

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**Math 1342: Elementary Statistical Methods| Lecture | #20883**

Fall 2020 | 16 Weeks (8/24/2020-12/7/2020)

Web - On A Schedule | MW 11 a.m.-12:20 p.m.

3 Credit Hours | 48 hours per semester

**Instructor Contact Information**

Instructor: William Vanderzyden	Office Phone: 713-718-xxxx
Office: TBD	Office Hours: M-R 1:00 P.M.–2:30 P.M.
HCC Email: <a href="mailto:william.vanderzyden@hccs.edu">william.vanderzyden@hccs.edu</a>	Office Location: TBD

Please feel free to contact me concerning any problems that you are experiencing in this course. Your performance in my class is extremely important to me. I am always available to listen to your concerns or just to discuss course topics.

**Instructor's Preferred Method of Contact**

My preferred method of contact will be via email ([william.vanderzyden@hccs.edu](mailto:william.vanderzyden@hccs.edu)). You can also call me at 713-718-xxxx. If you feel you need to contact the Mathematics Department, you may contact the Mathematics Department at 713-718-6452 or by email at [patriciam.hernandez@hccs.edu](mailto:patriciam.hernandez@hccs.edu). I will respond to emails within 24 hours Monday through Friday; I will reply to weekend messages on Monday mornings.

**What's Exciting About This Course**

Statisticians contribute to society in many ways, from protecting endangered species and managing the impacts of climate change to making medicines more effective and reducing hunger and disease. The ways in which statisticians make the world a better place are vast.

Careers in statistics are fun. You could be a "Moneyball"-style statistician who helps professional sports teams pick the next season's new players, or a member of the data science team of a U.S. presidential campaign. The field is filled with interesting opportunities and dynamic people.

Statistics is a science. It involves asking questions about the world and finding answers to them in a scientific way. If you are curious about how things work, statistics is a career that will keep your curiosity piqued and your brain engaged.

## My Personal Welcome

Thank you for taking my statistics class. I know that, with hard work and persistence, you will be successful in this class. My number one goal is your success. Please let me know if there is anything that I can do to help you or if there is anything that you would like for me to explain better.

As you read and wrestle with new ideas and facts that may challenge you, I am available to support you. The fastest way to reach me is by my HCC email. The best way to really discuss issues is through Webex and I will be available during posted office hours to tackle any questions. My goal is for you to learn as much as you can about statistics and to expand your overall understanding of mathematics.

## Prerequisites and/or Co-Requisites

Prerequisites: A grade of C or better in Math 0310 or its equivalent or an acceptable placement score. A grade of C or better in Math 0314 its equivalent or an acceptable placement score.

Co-Requisites: MATH 0342 is a co-requisite to MATH 1342. Since MATH 0342 is co-requisite with MATH 1342, withdrawing from either MATH 0342 or Math 1342 will necessitate withdrawal from the other as well. Please carefully read and consider the repeater policy in the [HCCS Student Handbook](#).

## Canvas Learning Management System

This section of MATH 1342 will use [Canvas \(https://eagleonline.hccs.edu\)](https://eagleonline.hccs.edu) to supplement in-class assignments, exams, and activities. You will need to enter Canvas daily in order to work on assignments and check your grades. I will include grading rubrics as needed. HCCS Open Lab locations may be used to access the Internet and Canvas. **USE [FIREFOX](#) OR [CHROME](#) AS THE INTERNET BROWSER.**

## HCC Online Information and Policies

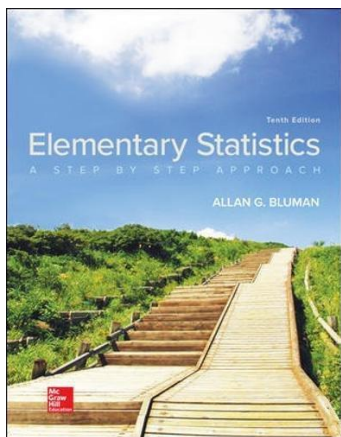
Here is the link to information about HCC Online classes including the required Online Orientation for all fully online classes: <http://www.hccs.edu/online/>

## Scoring Rubrics, Sample Assignments, etc.

Look in Canvas for the scoring rubrics for assignments, samples of class assignments, and other information to assist you in the course. <https://eagleonline.hccs.edu/login/ldap>

## Instructional Materials

### Textbook Information



The textbook listed below is **required** for this course.

**Elementary Statistics, A Step by Step Approach, 10<sup>th</sup> Edition**, By Bluman, McGraw-Hill Education, ISBN: 978-1264094592

ISBN: 9781260364323 (access code with e-book)

It is included in a package that contains the text as well as an access code and are found at the [HCC Bookstore](#). You may either use a hard copy of the book or the e-book through Connect Math.

### Temporary Free Access to E-Book

For temporary free access to Connect Math and the online eBook, go to [www.connectmath.com](http://www.connectmath.com) and register using the Connect Math Course ID: \*\*\*\*\*-\*\*\*\*\*

## Other Instructional Resources

### Tutoring

HCC provides free, confidential, and convenient academic support, including writing critiques, to HCC students in an online environment and on campus. Tutoring is provided by HCC personnel in order to ensure that it is contextual and appropriate. Visit the [HCC Tutoring Services](#) website for services provided.

### Libraries

The HCC Library System consists of 9 libraries and 6 Electronic Resource Centers (ERCs) that are inviting places to study and collaborate on projects. Librarians are available both at the libraries and online to show you how to locate and use the resources you need. The libraries maintain a large selection of electronic resources as well as collections of books, magazines, newspapers, and audiovisual materials. The portal to all libraries' resources and services is the HCCS library web page at <http://library.hccs.edu>.

### Supplementary Instruction

Supplemental Instruction is an academic enrichment and support program that uses peer-assisted study sessions to improve student retention and success in historically difficult courses. Peer Support is provided by students who have already succeeded in completion of the specified course, and who earned a grade of A or B. Find details at <http://www.hccs.edu/resources-for/current-students/supplemental-instruction/>.

## Course Overview

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

### Core Curriculum Objectives (CCOs)

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.

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

### Program Student Learning Outcomes (PSLOs)

Students in the Mathematics Program will:

1. Engage in problem solving strategies, such as organizing information, drawing diagrams and modeling.
2. Use symbolic representations to solve problems. This includes manipulating formulas, solving equations, and graphing lines.
3. Build the foundational mathematical skills that will enable a student to successfully complete a college level mathematics course.

### Course Student Learning Outcomes (CSLOs)

Upon completion of MATH 1342, the student will be able to:

1. Explain the use of data collection and statistics as tools to reach reasonable conclusions.
2. Recognize, examine and interpret the basic principles of describing and presenting data.
3. Compute and interpret empirical and theoretical probabilities using the rules of probabilities and combinatorics.
4. Explain the role of probability in statistics.
5. Examine, analyze and compare various sampling distributions for both discrete and continuous random variables.
6. Describe and compute confidence intervals.
7. Solve linear regression and correlation problems.
8. Perform hypothesis testing using statistical methods.

## Learning Objectives

Upon completion of MATH 1342, the student will be able to:

1. Demonstrate knowledge of statistical terms.
2. Understand the difference between descriptive and inferential statistics.
3. Identify: types of data, measurement level of variables, and four basic sampling techniques.
4. Construct the relative frequency table from a given set of ungroup data.
5. Know and use the different graphs: histogram, frequency polygon, Ogives, Pareto, and pie to present data.
6. Compute the mean, median, mode, midrange, range, variance, and standard deviation.
7. Identify the various measures of position such as percentiles, deciles, and quartiles.
8. Find the total number of outcomes in a sequence of events using tree diagram and multiplication rule.
9. Understand the use of permutation and combination rules.
10. Determine sample spaces and find the probability of an event using classical probability.
11. Find the probability of compound events using addition and/or multiplication rules.
12. Find the conditional probability of an event
13. Construct a probability distribution for a random variable
14. Find the mean, variance, and expected value for a probability distribution function.
15. Find the exact probability for  $X$  successes in  $n$  trial of a binomial experiment.
16. Find the mean, variance, and standard deviation for binomial distribution.
17. Identify the properties of the normal distribution.
18. Find the area under the normal curve, given various  $z$  values.
19. Find probabilities for a normally distributed variable by transforming it into a standard normal variable.
20. Find specific data values for given percentages using the standard normal distribution.
21. Apply the central limit theorem to solve problems involving sample means.
22. Use the normal approximation to compute probabilities for a binomial variable.
23. Find a confidence interval for the mean when  $\sigma$  is known or  $n \geq 30$ .
24. Determine the minimum sample size for finding a confidence interval for the mean.
25. Find a confidence interval for the mean when  $\sigma$  is unknown and  $n < 30$ .
26. Find a confidence interval for proportion.
27. Determine the minimum sample size for finding a confidence interval for a proportion.
28. Find a confidence interval of variance and standard deviation.
29. Understand the definitions used in hypothesis testing.
30. State null hypothesis and alternative hypothesis.
31. Understand the terms: type I error and type II error, test criteria, level of significance, test statistic.
32. Find the critical values for the  $z$ -test,  $t$ -test, and  $F$ -test.
33. Test hypothesis for: means (large and small sample), proportions, variance, and standard deviation.
34. Draw scatter plot for a set of ordered pairs.
35. Compute the correlation coefficient and the coefficient of determination.
36. Compute the equation of the regression line by using the least square method.
37. Test a distribution for goodness of fit using chi-square.
38. Test independence and homogeneity using chi-square.

## Student Success

Expect to spend at least twice as many hours per week outside of class as you do in class studying the course content. Additional time will be required for written assignments. The assignments provided will help you use your study hours wisely. Successful completion of this course requires a combination of the following:

- Reading the textbook
- Attending class in person and/or online
- Completing assignments
- Participating in class activities

There is no short cut for success in this course; it requires reading (and probably re-reading) and studying the material using the course objectives as a guide.

### Instructor and Student Responsibilities

As your Instructor, it is my responsibility to:

- Provide the grading scale and detailed grading formula explaining how student grades are to be derived
- Facilitate an effective learning environment through learner-centered instructional techniques
- Provide a description of any special projects or assignments
- Inform students of policies such as attendance, withdrawal, tardiness, and making up assignments
- Provide the course outline and class calendar that will include a description of any special projects or assignments
- Arrange to meet with individual students before and after class as required

As a student, it is your responsibility to:

- Attend class in person and/or online
- Participate actively by reviewing course material, interacting with classmates, and responding promptly in your communication with me
- Read and comprehend the textbook
- Complete the required assignments and exams
- Ask for help when there is a question or problem
- Keep copies of all paperwork, including this syllabus, handouts, and all assignments
- Be aware of and comply with academic honesty policies in the HCCS Student Handbook

## Assignments, Exams, and Activities

### Homework Assignments

Although the homework assignments will carry very little weight in the class, these homework assignments are critical for your understanding of the material. I expect that you will work on the homework daily and ask questions about the problems as needed.

## Exams

I will be giving 4 exams over the course of the semester. These tests will be on the connect math platform and must be taken using Respondus – Lockdown Browser. I will be dropping the lowest test score.

## Final Exam

All students will be required to take a cumulative Final exam. The final exam date and time is Monday, December 7, 2020 at 11:00 AM.

### Final Exam Review Sessions: HCC MATH DAYS

The Math Department will offer several Final Exam Review sessions (i.e., **HCC Math Days**) for this course near the end of the semester (Fall and Spring semesters only). We encourage you to attend at least one of these sessions as you prepare for the comprehensive Final Exam. Your professor will provide you with more information regarding HCC Math Days locations and session times later in this semester.

While the full-time Math Department faculty leading these review sessions are prepared to answer students' questions on a variety of course topics, the **Final Exam Study Guide** will provide the basis for the HCC Math Days sessions. Therefore, to get the most out of these review sessions, be sure review and to work through the **Final Exam Study Guide** before you attend the review session(s). Please ask your professor if you have any questions regarding these sessions. Finally, the Math 1342 **Final Exam Study Guide** and the **dates** for the Math Days review sessions are located at:

<https://cofinite.com/MathDays/Math1342.php>

## Grading Formula

You can use the canvas grades or the connect math grades to estimate your final grade for the class. The grade makeup and distribution is listed below:

Exam 1	20% of your grade
Exam 2	20% of your grade
Exam 3	20% of your grade
Homework	15% of your grade
Final Exam	25% of your grade

Grade	Overall Percentage
A	90% +
B	80 -89.999%
C	70 -79.999%
D	60 -69.999%
F	<60%

**For distance Ed (Online courses):**

The Math Department requires that at least **45%** of your course grade will consist of scores from *at least two in-person proctored exams in the Testing Center*.

**Incomplete Policy:**

In order to receive a grade of Incomplete ("I"), a student must have completed at least 85% of the work in the course. In all cases, the instructor reserves the right to decline a student's request to receive a grade of Incomplete.

**HCC Grading Scale can be found on this site under Academic Information:**  
<http://www.hccs.edu/resources-for/current-students/student-handbook/>

**Course Calendar**

WEEK	UNIT	TOPICS	SECTIONS
1	1	The Nature of Probability and Statistics	<i>Sections: 1.1-1.5</i>
2	2	Frequency Distribution and Graphs	<i>Sections: 2.1-2.3</i>
3-4	3	Data Description	<i>Sections: 3.1-3.4</i>
5	4	Probability and Counting Rules	<i>Sections: 4.1-4.5</i>
6-7	5	Discrete Probability Distributions	<i>Sections: 5.1-5.4</i>
8-9	6	Normal Distribution	<i>Sections: 6.1-6.4</i>
10-11	7	Confidence Intervals and Sample size	<i>Sections: 7.1-7.4</i>
12-13	8	Hypothesis Testing	<i>Sections: 8.1-8.4</i>
14	9	Testing the difference	<i>Sections: 9.1-9.4</i>
15	10	Correlation and Regression	<i>Sections: 10.1-10.3</i>
<b>16</b>		<b>FINAL EXAM (12/7/20 @ 11:00 am)</b>	<b>COMPREHENSIVE</b>

**Syllabus Modifications**

The instructor reserves the right to modify the syllabus at any time during the semester and will promptly notify students in writing, typically by e-mail, of any such changes.

**Instructor's Practices and Procedures****Missed Assignments**

It is the student's responsibility to inform your instructor of any issues that may arise during the semester that would be the cause for late work. Please advise me of any situation as quickly as possible. I will be dropping the lowest test score. There will be no make up tests. If you miss a test, this will be counted as your lowest test score and be dropped. If you miss two tests, then you will be in danger of not passing the course.



## Academic Integrity

All work is expected to be your own, independent work. Please remember this while working on assignments.

All forms of academic dishonesty including, but not limited to cheating, plagiarism, and collusion are serious offenses. Possible consequences for academic dishonesty include a grade a 0 or F in the particular assignment, failure in the course, and/or recommendations for probation or dismissal from the institution.

Here's the link to the HCC information about academic integrity (Scholastic Dishonesty and Violation of Academic Scholastic Dishonesty and Grievance):

<http://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-procedures/>

## Attendance Procedures

You will be expected to attend class each class period and to log in daily and work on the problems every day. Any extended periods of not logging in will be considered the same as missed class days. You should contact me if there are any attendance issues that arise during the semester. **The last day to withdraw is 10/30/2020.**

## Student Conduct

Students should act in accordance with the student code of conduct. Specifically, no student should disrupt the learning of any other student in the class.

## Electronic Devices

The use of a TI-84 (or similar) calculator will be allowed for certain calculations. You may not access any other websites during testing. The use of electronic devices by students in the classroom is up to the discretion of the instructor. Any use of such devices for the purposes other than student learning is strictly prohibited unless authorized as an appropriate ADA accommodation from the ADA Counselor.

## Mathematics Program Information

- HCC Math Student Organizations: Mu Alpha Theta: Application:  
<https://www.hccs.edu/resources-for/current-students/stem--science-technology-engineering--mathematics/stem-clubs/mu-alpha-theta-application/>

## HCC Policies

Here's the link to the HCC Student Handbook <http://www.hccs.edu/resources-for/current-students/student-handbook/> In it you will find information about the following:

- Academic Information
- Academic Support
- Attendance, Repeating Courses, and Withdrawal
- Career Planning and Job Search
- Childcare
- disAbility Support Services
- Electronic Devices
- Equal Educational Opportunity
- Financial Aid TV (FATV)
- General Student Complaints
- Grade of FX
- Incomplete Grades
- International Student Services
- Health Awareness
- Libraries/Bookstore
- Police Services & Campus Safety
- Student Life at HCC
- Student Rights and Responsibilities
- Student Services
- Testing
- Transfer Planning
- Veteran Services

### EGLS<sup>3</sup>

The EGLS<sup>3</sup> (Evaluation for Greater Learning Student Survey System) will be available for most courses near the end of the term until finals start. This brief survey will give invaluable information to your faculty about their teaching. Results are anonymous and will be available to faculty and division chairs after the end of the term. EGLS<sup>3</sup> surveys are only available for the Fall and Spring semesters. -EGLS3 surveys are not offered during the Summer semester due to logistical constraints.

<http://www.hccs.edu/resources-for/current-students/egls3-evaluate-your-professors/>

### Campus Carry Link

Here's the link to the HCC information about Campus Carry:

<http://www.hccs.edu/departments/police/campus-carry/>

## **HCC Email Policy**

When communicating via email, HCC requires students to communicate only through the HCC email system to protect your privacy. If you have not activated your HCC student email account, you can go [to HCC Eagle ID](#) and activate it now. You may also use Canvas Inbox to communicate.

## **Housing and Food Assistance for Students**

Any student who faces challenges securing their foods or housing and believes this may affect their performance in the course is urged to contact the Dean of Students at their college for support. Furthermore, please notify the professor if you are comfortable in doing so.

This will enable HCC to provide any resources that HCC may possess.

## **Office of Institutional Equity**

Use the link below to access the HCC Office of Institutional Equity, Inclusion, and Engagement (<http://www.hccs.edu/departments/institutional-equity/>)

## **disAbility Services**

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including long and short term conditions, mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to <http://www.hccs.edu/support-services/disability-services/>

## Title IX

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual's fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross  
 Director EEO/Compliance  
 Office of Institutional Equity & Diversity  
 3100 Main  
 (713) 718-8271  
 Houston, TX 77266-7517 or [Institutional.Equity@hccs.edu](mailto:Institutional.Equity@hccs.edu)  
<http://www.hccs.edu/departments/institutional-equity/title-ix-know-your-rights/>

### Office of the Dean of Students

Contact the office of the Dean of Students to seek assistance in determining the correct complaint procedure to follow or to identify the appropriate academic dean or supervisor for informal resolution of complaints.

<https://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-complaints/speak-with-the-dean-of-students/>

### Department Chair Contact Information

#### College - Level Math Courses

Chair of Math	Susan Fife	SW Campus	713-718-7241	Stafford, Scarcella, N108
- Admin. Assistant	Tiffany Pham	SW Campus	713-718-7770	Stafford, Scarcella, N108
- Admin. Assistant	Christopher Cochran	SW Campus	713-718-2477	Stafford, Scarcella, N108
Math Assoc. Chair	Jaime Hernandez	CE Campus	713-718-7772	San Jacinto Building, Rm 369
Math Assoc. Chair	Mahmoud Basharat	NW Campus	713-718-2438	Katy Campus Building, Rm 112
Math Assoc. Chair	Emmanuel Usen	NE Campus	713-718-8062	Northline, Rm 324

**Developmental Math Courses**

Chair of Dev. Math	Marisol Montemayor	SE Campus	713-718-7153	Felix Morales Building, Rm 124
- Admin. Assistant	Carmen Vasquez	SE Campus	713-718-7056	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Hien Nguyen	SE Campus	713-718-2440	Felix Morales Building, Rm 124
Dev. Math Assoc. Chair	Jack Hatton	SW Campus	713-718-2434	Stafford, Learning Hub, Room 208

For issues related to your class, please first contact your instructor.

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.