



**Division of Mathematics  
Mathematics Department**

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

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**Math 1342: Elementary Statistical Methods| Lecture | #13159**

SUMMER I 2020 | 5 Weeks (6.8.2020-7.12.2020)

| **HCC ONLINE** |

3 Credit Hours | 48 hours per semester

**Instructor Contact Information**

Instructor:	<b>Charles Gabi</b>	Office Phone:	<b>713-718-2435</b>
Office:	<b>Northline, Room 321</b>	Office Hours:	<b>M-R 9:00 am-12:00 pm T-Th 9 am-12:00 am <b>By Appointment.</b></b>

HCC Email: [charles.gabi@hccs.edu](mailto:charles.gabi@hccs.edu) Office Location: **Northline Faculty Area**  
Please feel free to contact me concerning any problems that you are experiencing in this course. Your performance in my class is very important to me. I am available to hear the concerns and just to discuss course topics.

**Instructor's Preferred Method of Contact**

I will respond to emails within 48 hours Monday through Friday; I will reply to weekend messages on Monday mornings, except during an exam week or cases of extreme emergency. Please always use "**Math 1342-13159**" in your subject line.

**Learning Web:** <http://learning.hccs.edu/faculty/Charles.Gabi>

You will find your syllabus and other resources on your class page.

**What's Exciting About This Course**

This course will introduce you to the exciting world of statistical analysis.

**My Personal Welcome**

Welcome to Math 1342 HCC college class. Please feel free to contact me and visit with me whenever you need help.

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 in person and I'm available during posted office hours to tackle the questions. My goal is for you to walk out of the course with a better understanding of yourself and of human behavior. So please visit me or contact me by email whenever you have a question.

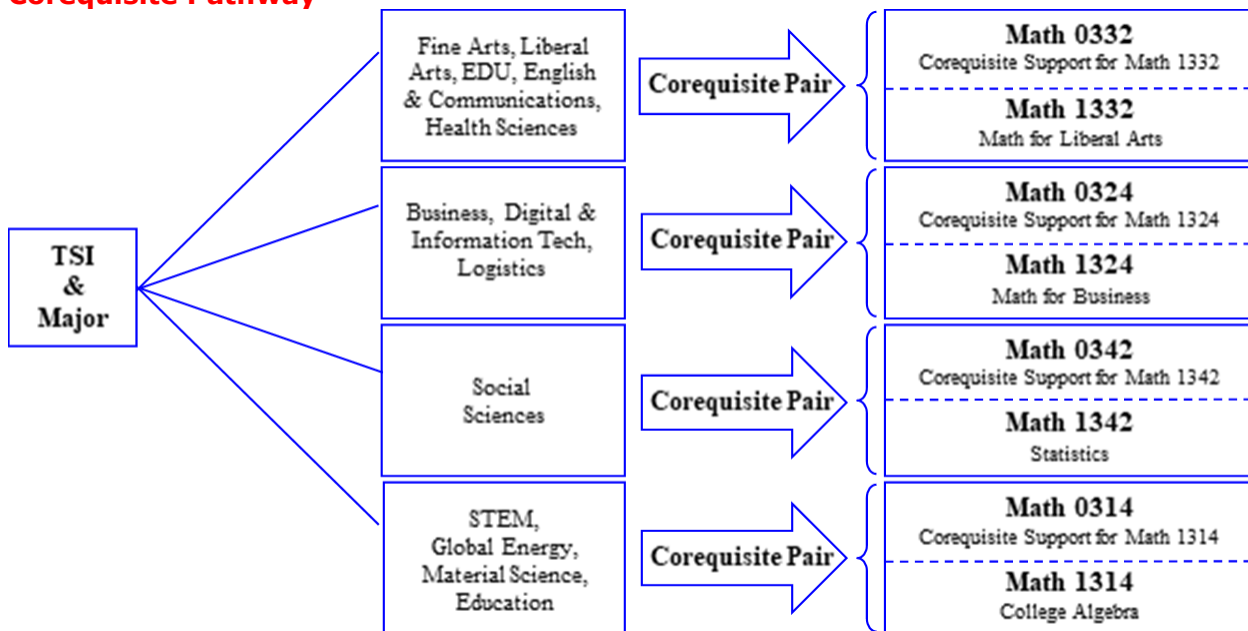
## Prerequisites and/or Co-Requisites

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](#).

### HCC MATH PATHWAYS

#### Corequisite Pathway



### 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 be using Canvas for some class discussions and activities.**

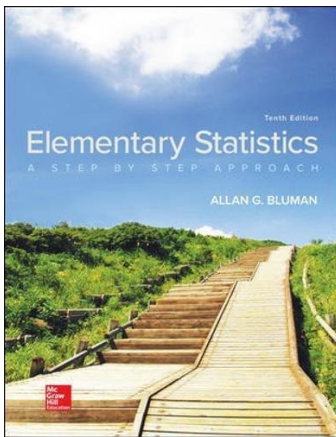
HCCS Open Lab locations may be used to access the Internet and Canvas. **USE FIREFOX OR CHROME AS THE INTERNET BROWSER.**

#### 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, register through your Canvas course. There is a link to Connect Math under modules.**

### 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 ungrouped 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  $n$  trials 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.

**Course Outline:** Instructors may find it preferable to cover the course topics in the order listed below. However, the instructor may choose to organize topics in any order, but all material must be covered.

<b>APPROXIMATE TIME</b>	<b>TEXT REFERENCE</b>
<b>Unit 1 – The Nature of Probability and Statistics</b> (3 hours) This unit covers an introduction to statistics, descriptive and inferential statistics, variables and types of data, data collection, sampling techniques, and uses and misuses of statistics. A technology discussion is included.	<i>Sections: 1.1-1.5</i>
<b>Unit 2 – Frequency Distribution and Graphs</b> (3 hours) This unit covers data in frequency distributions and tables, graphs of frequency polygons, histograms, ogives, pareto charts, and time series. quartiles, and outliers.	<i>Sections: 2.1-2.3</i>
<b>Unit 3 – Data Description</b> (6 hours) This unit covers measures of central tendency, measures of variation, and measures of position. Topics include measures of central tendency, measures of variation, and measures of position. Included in these topics are the math concepts of mean, median, mode, distribution shapes, range, variance, standard deviation, coefficient of variation, Chebyshev’s theorem, z score, percentiles, deciles,	<i>Sections: 3.1-3.4</i>
<b>Unit 4 –Probability and Counting Rules</b> (4.5 hours) <i>This unit begins with the introduction to probability as a chance concept. The basic concepts of probability covered are probability experiments, sample spaces, the addition and multiplications rules, and conditional probabilities. Also, counting rules, permutations and combinations are discussed.</i>	<i>Sections: 4.1-4.5</i>
<b>Unit 5 – Discrete Probability Distributions</b> (4.5 hours) This unit gives an introduction to distribution theory and explains the concepts and applications of a probability distribution. Topics include mean and variance of discrete random variables and the binomial distribution.	<i>Sections: 5.1-5.4.</i>
<b>Unit 6 – Normal Distribution</b> (6 hours) This unit begins with properties of a normal distribution. Topics include the standard normal distribution, application of the normal distribution, the central limit theorem, and normal approximation to the binomial distribution.	<i>Sections: 6.1-6.4</i>
<b>Unit 7 – Confidence Intervals and Sample size</b> (6 hours) This unit starts with an introduction to inferential statistics as related to estimation. Topics include confidence intervals for the mean (standard deviation of population known and ( $n \geq 30$ ), sample size, confidence intervals for mean (sigma unknown and ( $n < 30$ ), confidence intervals and sample size for proportions, and confidence intervals for variances and standard deviation.	<i>Sections: 7.1-7.4</i>
<b>Unit 8 – Hypothesis Testing</b>	<i>Sections: 8.1-8.4</i>

(6 hours)

This unit begins with an introduction to the concepts involved with statistical hypothesis testing. Topics include steps in hypothesis testing of the z-test for mean and proportion, and the t-test for means using the traditional and p-value methods. A chi-squared test for variance and standard deviation is also included.

### **Unit 9 – Testing the difference**

*Sections: 9.1-9.4*

(4.5 hours)

This unit begins with testing the difference between two means, and two proportions.

### **Unit 10 – Correlation and Regression**

*Sections: 10.1-10.3*

(4.5 hours)

This unit begins Scatter Plots and correlation. Topics include regression, line best fit, and coefficient of determination of standard error of the estimate

## **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

### Remote Exam Proctoring (Remote Invigilation)

The Math Department is requiring the remote proctoring of all major examinations (including the Final Exam) to ensure the integrity of the assessment process and to prevent acts of academic dishonesty. In this course, in addition to a reliable internet connection, you will be required to have hardware that meets the following minimal requirements:

- a) a functioning webcam and microphone, and
- b) a computer with operating system that is capable of running the Respondus LockDown Browser and Respondus Monitor.

### Exams

There are four major exams and a comprehensive final exam. Each major exam will count 13%, the quiz 12% and Homework will count 11% and the final exam will count 25%. **All exams will be administered through Canvas.**

### Homework

Homework will be online using CONNECT-MATH. **Homework is required and you must score at least an 80 % on all corresponding homework before taking an exam.** You will be able to access your **CONNECT-MATH** homework through your Canvas course.

### **DON'T PUT OFF THE CONNECT-MATH ASSIGNMENTS!**

**Work on them soon after they are assigned, while the material is fresh in your mind! Your CONNECT-MATH HOMEWORK average can have a major impact on your overall grade!**

### Final Exam

All students will be required to take a cumulative Final exam.

### Grading Formula

#### Student Assignments

All homework must be completed online using **Connect-Math..** You must have a score of at least 80% on all corresponding homework to take any Test.

ConnectMath is not programmed to compute your grades, therefore the average you see in ConnectMath is not your actual average for the class.



**Assessments:**

Your final grade for the course will be evaluated according to the following formula;

1. Four Examinations .....13% each.
2. Connect-math homework .....11%.
3. Quiz.....12%
4. Comprehensive Final .....25%.

$$\text{Course Average} = 0.13[(E1 + E2 + E3 + E4)] + 0.11(\text{HW}) + 0.12(\text{Quiz}) + 0.25(\text{Final})$$

Grade	Overall Percentage
A	90% +
B	80%-89%
C	70%- 79%
D	60%-69%
F	<60%

**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/>

**Tentative Calendar**

Test	Chapters Covered on Test	Date
Test #1	Chapter.1, 2, 3	6//12 /20
Test #2	Chapter 4, 5	6/19/20
Test # 3	Chapter 6, 7	6/26/20
Test #4	Chapter 8, 9 & 10	7/8/20
Final Exam	<b>Comprehensive Final Exam</b>	7/9/20

## 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

### Academic Integrity

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

*It is important that you come to class!* Attending class regularly is the best way to succeed in this class. Research has shown that the single most important factor in student success is attendance. Simply put, going to class greatly increases your ability to succeed. For complete information regarding Houston Community College's policies on attendance, please refer to the Student Handbook. You are responsible for materials covered during your absences. Class attendance is checked daily. Although it is your responsibility to drop a course for nonattendance, the instructor has the authority to drop you for excessive absences. **You are expected to log into homework or Canvas daily. The last day to withdraw June 29, 2020.**

### Student Conduct

Be respectful and considerate of all your classmates and Instructor all the time.

### Instructor's Course-Specific Information (As Needed)

**You are advised to keep all your course related notes and work in a 2 inch binder.**

### Electronic Devices

A graphing calculator is allowed on exams. A TI 83//84 Plus is highly recommended. There are a number of problems in your homework that can only be done using a TI 83/84 Plus. 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	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	Jack Hatton	SE Campus	713-718-2434	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	Adnan Ulhaque	SW Campus	713-718-5463	Stafford, Learning Hub, Room 208
Technical Support Specialist	Douglas Bump	SE Campus	713-718-7317	Angela Morales Building, Rm 101

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.