



**Division of Mathematics  
Mathematics Department**

<http://www.hccs.edu/programs/Mathematics>

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**Math 2412: Pre Calculus | Lecture | CRN: 14237**

Spring 2020 | 16 Weeks (1/21/2020-5/17/2020)

In-Person | West Loop Campus - Room C244 | Tu & Th 8:00 a.m.- 9:50 a.m.  
4 Credit Hours | 64 hours per semester

**Instructor Contact Information**

Instructor: Houssam Kalajo  
Office Location: West Loop, Room C256 – B7

HCC Email: [houssam.kalajo@hccs.edu](mailto:houssam.kalajo@hccs.edu)  
Office Hours: Mo/We: 8 – 8:45 am,  
Tu/Th 10 – 10:45 am, 12:30 – 1:20 pm  
(By appointment)

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 your concerns and just to discuss course topics.

**Instructor's Preferred Method of Contact**

If you need to contact me, email me at my school email: [houssam.kalajo@hccs.edu](mailto:houssam.kalajo@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**

Overall, math is a subject which requires practice, and, in math, logic is a much-needed thing. This makes math a very interesting subject. The joy of seeing what math can do, not just how it is done.

**My Personal Welcome**

Welcome to Math 2412. I'm delighted that you have chosen this course! I will present the information in the most exciting way I know, so that you can grasp the concepts and apply them now and hopefully throughout your life.

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. 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 1314 AND a grade of C or better in Math 1316. If you have enrolled in this course having satisfied these prerequisites, you have a higher chance of success than students who have not done so. Please carefully read and consider the repeater policy in the [HCCS Student Handbook](#).

## Eagle Online Canvas Learning Management System

This section of MATH 2412 will use [Eagle Online Canvas](https://eagleonline.hccs.edu) (<https://eagleonline.hccs.edu>) to supplement in-class assignments, exams, and activities.

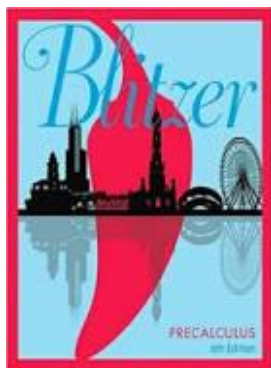
**Eagle Online Canvas:** Your grades and some documents for the class will be available in Eagle Online Canvas. You should check the site a few times each week.

- The Eagle Online Canvas site is <http://eagleonline.hccs.edu>
- Your login is your HCC email user name including @hccs.edu
- Your password is your HCC email password
- For problems using or accessing Canvas, visit the Technical Support Webpage at <https://www.hccs.edu/online/technical-support/>, call at [713.718.5275](tel:713.718.5275) or email [hcc.online@hccs.edu](mailto:hcc.online@hccs.edu)

HCCS Open Lab locations may be used to access the Internet and Eagle Online Canvas. It is recommended that you **USE FIREFOX OR CHROME AS YOUR BROWSER.**

## Instructional Materials

### Textbook Information



The textbook listed below is **required** for this course.  
**"Precalculus"** (6<sup>th</sup> edition) by Robert Blitzer (Pearson).  
 ISBN: 978 0134765488 (textbook and access code)  
 ISBN: (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 rent the e-book from Pearson. Order your book here: [HCC Bookstore](#)

### Temporary Free Access to E-Book

For temporary free access to MathLab and the online eBook, go to canvas and click on the MyLab and Mastering link on the left frame. This link will take you to the website where you can and register without a 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

Math 2412: Precalculus is intended primarily to prepare students for calculus. It can also be used for general mathematics credit. This course is an In-depth combined study of algebra, trigonometry, and other topics for calculus readiness. Topics include elementary theory of functions and equations, analytic geometry, vectors, mathematical induction, sequences and finite series, and an introduction limits.

### 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 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.

## Program Student Learning Outcomes (PSLOs)

Students in the Mathematics Program will:

1. Engage in problem solving strategies, such as organizing information, drawing digrams 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 2412, the student will be able to:

1. Demonstrate and apply knowledge of properties of functions.
2. Recognize and apply algebraic and transcendental functions and solve related equations.
3. Apply graphing techniques to algebraic and transcendental functions.
4. Compute the values of trigonometric functions for key angles in all quadrants of the unit circle measured in both degrees and radians.
5. Prove trigonometric identities.
6. Solve right and oblique triangles.
7. Evaluate limits analytically.

## Learning Objectives

Upon Completion of Math 2412, the students will be able to:

1. Develop and use various problem-solving techniques.
2. Recognize functions as ordered pairs.
3. Determine the graph of an algebraic equation or function.
4. Understand synthetic division.
5. Develop partial fraction decomposition.
6. Find the zeros of real functions.
7. Solve polynomial equations.
8. Utilize the six basic trigonometric functions.
9. Apply the Law of sines and the Law of cosines for various types of situations.
10. Verify various trigonometric identities.
11. Find the powers and roots of complex numbers using DeMoivre's Theorem.
12. Understand basic vectors (2 dimensional).
13. Convert points in a rectangular coordinate system to polar coordinates.
14. Recognize algebraic formulas relating to circles, parabolas, ellipses, and hyperbolas.
15. Use translation of axes, rotation of axes, and polar equations of conics.
16. Recognize the use of arithmetic and geometric sequences.
17. Use summation notation to represent a series.
18. Understand and use the Binomial theorem.
19. Understand mathematical induction.
20. Understand the basic concepts of limits.

## 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 your 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 make up
- Provide the course outline and class calendar which 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**

This class uses *MyMathLab* for reviewing course-related materials and completing online exercises. This third-party Learning Management System (LMS) has been integrated into Eagle Online Canvas. The first time you attempt to log on to *MyMathLab*, you will be required to register. After you complete your registration, you will be able to log into the course homework system directly from Eagle Online Canvas. You will be able to see your homework (and quiz) grades from the Eagle Online Canvas Grade Book.

### **Exams**

There will be four in-class major examinations plus the final exam. Each exam is worth 100 points. Before each exam, please clear your desk of all material except pencils/pens, erasers, and scratch work. In addition, please do not share any material during an exam.

### **Final Exams**

All students will be required to take a comprehensive final exam.

## 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 2412 **Final Exam Study Guide** and the **dates** for the Math Days review sessions are located at:

<https://cofinite.com/MathDays/Math2412.php>

## Grading Formula

Your course grade will be computed as follows:

Exam 1	15% of your grade
Exam 2	15% of your grade
Exam 3	15% of your grade
Exam 4	15% of your grade
Homework (MyLab)	20% of your grade
Final exam	35% of your grade

One lowest major exam out of 4 will be dropped.

**Final Average Score = Average of 3 highest exams out of 4 X 0.45 + HWK (MyLab) X 0.20 + Final Exam X 0.35**

Your final course grade is based on the following standard HCC scale.

Final Average	$90 \leq \text{Avg} \leq 100$	$80 \leq \text{Avg} < 90$	$70 \leq \text{Avg} < 80$	$60 \leq \text{Avg} < 70$	$\text{Avg} < 60$
Final Course Grade	A	B	C	D	F or FX

### Notes:

- ❖ Be sure that your name in MyLab exactly matches your name on Class Roster.
- ❖ No extra work is given for extra credit.
- ❖ No extra work is given to "bring up my grade" or because this is the "last class I need to graduate".

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

## Course Calendar

### Course Outline

#### APPROXIMATE TIME

Unit I – Factoring with negative rational exponents

#### TEXT REFERENCE

Section: Addendum 1

**Difference Quotient**  
**Partial Fractions**  
**(3 hours)**

**Section:** 1.3 p. 180-1  
**Section:** 7.3

Review Topics include the following: Graphs and graphing utilities, lines in the plane, slope, functions, polynomial functions of higher degree, synthetic division, real zeros of polynomial functions, and the intermediate value theorem. Required topics are: Factoring with negative rational exponents, finding the difference quotient, and partial fraction decomposition.

**Unit II – Trigonometry (review)**

**Sections:** {4.2, 4.5 - 4.7} (Review)

**Analytic Trigonometry (review)**

**Sections:** {5.1 – 5.3} (Review)

**Analytic Trigonometry**

**Sections:** 5.4, 5.5

**{5 hours at most for review}**  
**(4 hours)**

This unit contains Trigonometric Functions, the unit circle, graphs of the trigonometric functions, inverse trigonometric functions, verifying identities, sum and difference formulas, double angle and half-angle formulas, sum-to-product and product-to-sum formulas, and solving trigonometric equations.

**Unit III – Applications of Trigonometry**  
**(12 hours)**

**Sections:** Chapter 6

This unit includes Law of Sines, Law of Cosines, Polar coordinates, graphs of Polar equations, DeMoivre's Theorem, vectors, and the dot product.

**Unit IV – Conic Sections and Analytic Geometry**  
**(15 hours)**

**Sections:** Chapter 9

Topics include the ellipse, the hyperbola, the parabola, rotation of axes, parametric equations, and conic sections in polar coordinates.

**Unit V – Sequences, Induction, and Probability**  
**(14 hours)**

**Sections:** 10.1 – 10.5

This unit contains Sequences and summation notation, arithmetic sequences, Geometric Sequences and Series, Mathematical Induction, and The Binomial Theorem.

**Unit VI – Introduction to Calculus**  
**(12 hours)**

**Sections:** 11.1 – 11.4

This unit contains an introduction to limits using tables and properties, continuity, and an introduction to derivatives.

**Exam Schedule:**

Exam 1	Sections Addendum 1, 1.3, 7.3, 4.2, 4.5 - 4.7 and 5.1 - 5.3	TBA
Exam 2	Sections 5.4 - 5.5 and 6.1 - 6.7	TBA
Exam 3	Sections 10.1 - 10.5 and 11.1 - 11.2	TBA
Exam 4	Sections 11.3 - 11.4 and Chapter 9	TBA
Final Exam	Comprehensive – All the above sections	5/14/2020

**Calculators:**

A scientific or graphing calculator (not programmable) is allowed to be used *on any examinations, including the final exam.*

## 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

Exams must be taken on the specified day. **No MAKE-UP** examinations will be given. The final examination grade will be substituted for one missed test only, **regardless of the reason**. If a second test is missed, the score for that test is zero.

### Academic Integrity

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. The instructor is 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, the instructor has 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 that has not been 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)

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. 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.

If you are not attending class, you are not learning the information. As the information that is discussed in class is important for your career, students may be dropped from a course after accumulating absences in excess of six (6) hours of instruction. The six hours of class time would include any total classes missed, for excessive tardiness or for leaving class early.

You may decide NOT to come to class for whatever reason. As an adult making the decision not to attend, you do not have to notify the instructor prior to missing a class. However, if this happens too many times, you may suddenly find that you have "lost" the class. Poor attendance records tend to correlate with poor grades. If you miss any class, including the first week, you are responsible for all material missed. It is a good idea to find a friend or a buddy in class who would be willing to share class notes or discussion or be able to hand in paper if you unavoidably miss a class. Class attendance equals class success.

If you feel that you cannot complete this course, you will need to withdraw from the course prior to the final date of withdrawal. If you do not withdraw before the deadline, you will receive the grade that you are making in the class as your final grade. If you wish to drop the class, then it is your responsibility to do that before the final drop date. ***Do not submit a request to discuss withdrawal options less than a day before the deadline. Neither you nor your instructor will be able to perform the drop after the final drop date.***

**The last day to withdraw from this course with a grade of W is April 6, 2020.**

### Student Conduct

As your instructor and as a student in this class, it is our shared responsibility to develop and maintain a positive learning environment for everyone. Your instructor takes this responsibility very seriously and will inform members of the class if their behavior makes it difficult for him/her to carry out this task. As a fellow learner, you are asked to respect the learning needs of your classmates and assist your instructor achieve this critical goal.

### Electronic Devices

All personal communication devices (any device with communication capabilities including but not limited to cell phones, blackberries, cameras, palmtop computers, lap tops, PDA's, radios, headsets, recorders, organizers, databanks, and electronic dictionaries or translators) must be muted or turned off during class. Such activity during class time is deemed to be disruptive to the academic process. Personal communication devices are to not be on the student desk during examinations. Usage of such devices during exams is expressly prohibited during examinations and will be considered cheating.

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.

*A scientific or graphing calculator (not programmable) is allowed to be used on any examinations, including the final exam. Cell phones may not be used as calculators.*

## 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/>
- Mathematics related Scholarships: T-Stem <https://www.hccs.edu/t-stem>

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