

# Math 294: ESP (Emerging Scholars Program) for Math 215

Spring 2024

## Instructor and Course Details

- Instructor: Kay Thompson
- Email: [kayt3@uic.edu](mailto:kayt3@uic.edu)
- CRN: 25662
- Credit hours: 1
- Office Hours: Thursday, 1:30-3:30pm at the Math & Science Learning Center
- Class Hours: Tuesday/Thursday 12:00-12:50pm
- Class Room: Taft Hall 320
- Website: [kaythmp.github.io/math294](https://kaythmp.github.io/math294) (grades visible on Blackboard)

## Course Information

This one credit-hour course is the Emerging Scholars Program (ESP) workshop associated with Math 215 Introduction to Advanced Mathematics. The purpose of this workshop is to reinforce the ideas covered in Math 215 and provide more opportunities to work with the material. It will mainly focus on proof-writing and problem-solving abilities, and students will develop their abstract reasoning skills through guided hands-on practice. In addition, some material beyond the scope of Math 215 may be provided for students who are interested.

In order to take this course, you must be registered for a section of Math 215. Math 294 is meant to be a companion course to Math 215, and students in ESP workshops have historically performed better in the associated course. However, this workshop is not a replacement for your Math 215 lectures.

Course notes will be posted on the website

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## Course Policies & Classroom Expectations

Each class session, we will focus on a different topic relating to material from Math 215. A typical session will begin with a mini-lecture on the day's topic. Most of the class time will be dedicated to working on problems in groups during class time in order to help everyone actively engage with the material. Everyone is expected to actively participate in groupwork – anyone who does not actively participate will not receive credit for that class session (asking questions and receiving help counts as participation!). At the end of each class, each student should hand in a hard copy or email me a picture/PDF of their work for the day. These submissions will not be graded for correctness – they are intended to help me get a sense of how everyone is doing.

### Grading

This class is graded on an A-F scale. Grades will be assigned based on attendance and participation. Arriving to class on time and actively contributing to your group's work will earn you attendance and participation credit for that day's class (1 point). Arriving over 10 minutes late will count for  $1/4$  of an absence ( $3/4$  point), while arriving more than 20 minutes late will count as  $1/2$  of an absence ( $1/2$  point). Failing to actively participate/contribute to group work will not earn you any credit. Absences can be excused if you have a valid reason. If you know in advance that you will have to miss a class, please email me as soon as possible. Unexcused absences can be made up by attending office hours – please contact me if you would like to do. There will also be one point awarded for completing the syllabus assignment (detailed at the end of the syllabus). Since we have 29 classes scheduled for the semester, the maximum number of possible points is 30 (including 1 point for the syllabus assignment). Grades will be assigned as follows:

- If you have  $\geq 27$  total points, you will get an A.
- If you have  $\geq 24$  total points, you will get an B.
- If you have  $\geq 21$  total points, you will get an C.
- If you have  $\geq 18$  total points, you will get an D.
- If you have  $< 18$  total points, you will get an F.

### Course Schedule

Below is a rough outline of planned topics for the semester. The actual schedule of topics is subject to change depending on course needs.

1. Introduction & What is a proof?
2. Propositional logic
3. First-order logic
4. Contrapositive & contradiction
5. Sets I

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6. Sets II
  7. Functions I
  8. Functions II
  9. Cardinality
  10. Induction I
  11. Induction II
  12. Number theory
  13. Real numbers
  14. Combinatorics
  15. Sneak peek into abstract algebra & real analysis

## **Accommodations**

### **Disability**

UIC is committed to full inclusion and participation of people with disabilities in all aspects of university life. If you face or anticipate disability-related barriers while at UIC,

please connect with the Disability Resource Center (DRC) ([drc.uic.edu](http://drc.uic.edu)) to create a plan for reasonable accommodations. To receive accommodations, you will need to disclose the disability to the DRC, complete an interactive registration process with the DRC, and provide me with a Letter of Accommodation (LOA). Upon receipt of an LOA, I will gladly work with you and the DRC to implement approved accommodations.

### **Religion**

Following campus policy, if you wish to observe religious holidays, you must notify me by the tenth day of the semester. If the religious holiday is observed on or before the tenth day of the semester, you should notify me at least five days before you will be absent.

### **Pregnancy**

Following campus policy, pregnant students have rights under Title IX. To request pregnancy-related accommodations, contact the Title IX Coordinator at [titleix@uic.edu](mailto:titleix@uic.edu) or 312-996-8670.

## **Classroom Environment**

In the classroom, you are expected to conduct yourself in a way that is conducive to the overall learning environment of the whole class. This includes, but is not limited to: avoiding cell phone use and other distractions; avoiding side conversations and other disruptive activity; treating other students with respect; and approaching difficulty and challenge as an opportunity to collaborate, flex reasoning skills, and gain mastery of new skills and ideas.

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## Syllabus Assignment

Please send me an email with subject line “Math 294 Syllabus Assignment”. In the email, please acknowledge that you have read and understood the syllabus. In addition, please answer the following two questions:

1. What is your current background in math? (This can include math courses you have taken or are currently taking in addition to Math 215, and extracurricular math experience)
2. What are you hoping to get out of Math 294? (e.g., additional help in Math 215, material that goes above and beyond that of Math 215, etc.)