THE UNIVERSITY OF CHICAGO
Announcement of the
2027 Summer Program for Undergraduates

This announcement describes an eight-week summer program of study and research for undergraduates, most of whom are from the University of Chicago. Its web page is

http://www.math.uchicago.edu/~may/REU2027.

Its first year of operation was 2000, and details from past years may be found at
http://math.uchicago.edu/~may/VIGRE/index.html
http://math.uchicago.edu/~may/REU2012/
http://math.uchicago.edu/~may/REU2013/
http://math.uchicago.edu/~may/REU2014/
http://math.uchicago.edu/~may/REU2015/
http://math.uchicago.edu/~may/REU2016/
http://math.uchicago.edu/~may/REU2017/
http://math.uchicago.edu/~may/REU2018/
http://math.uchicago.edu/~may/REU2019/
http://math.uchicago.edu/~may/REU2020/
http://math.uchicago.edu/~may/REU2021/
http://math.uchicago.edu/~may/REU2022/
http://math.uchicago.edu/~may/REU2023/
http://math.uchicago.edu/~may/REU2024/
http://math.uchicago.edu/~may/REU2025/
http://math.uchicago.edu/~may/REU2026/

In this program, students have the opportunity for intensive study and research in mathematics. Students participate in at least one of several lecture series taught by Department of Mathematics faculty members and are mentored by Department of Mathematics graduate students (or sometimes faculty).

The purpose of the program is to provide an opportunity for students to be involved in a deeper experience in mathematics than is usually available during the academic quarters. This program is especially beneficial for undergraduates who are considering graduate study and research in mathematics.

The program has no promised federal support, and any that might later be received will likely be limited to U.S. citizens and permanent residents. As in the past, people accepted to the program but for whom funding is not available, or who are generously willing to participate without support, are welcome as full participants in all REU activities. Participants are selected on a needs blind basis.

DATES: June 14–August 6, 2027; June 14 –July16 for the Apprentice Program. The program will be on campus. Participants in the full program are expected to be in residence for all eight weeks and apprentices are expected to be in residence for the first five weeks and are very welcome to participate in the program for the full eight weeks. University of Chicago participants are very strongly encouraged to apply for University support (Metcalf, etc).

STIPENDS: We must address the sordid question of financing. Decisions are made on a need-blind basis. I like Marx's quote "From each according to his ability, to each according to his needs". Many of us are untouched by the financial difficulties

that are ravaging others. Despite university generosity, we have very little money for the size of the program. If you do need funding, please tell us. Do not be at all shy about that. Students are also encouraged to explore other grants and funding sources for research and internships. Nearly everyone admitted in previous years participated despite the paucity of funding. We currently have limited funding, through the Career Advancement office, but only for University of Chicago students. Further funding is being sought.

Stipends to those receiving them will be paid at the end of July. Please note: taxes will be deducted from these paychecks. Paid participants are not permitted to hold a part-time job while participating in the REU without the approval of the program director.

ACCOMMODATIONS: University of Chicago students are expected to find their own accommodations. Graduate students and past participants will offer advice and assistance. On campus students from outside the University of Chicago will be offered asssistance through the University of Chicago housing office.

APPLICATIONS: Applications from non-U of C students are due Friday, February 6, 2026. University of Chicago students should apply through Handshake with an early deadline of Thursday, November 19. Here is the updated link to the Handshake Application:

`https://uchicago.joinhandshake.com/jobs/11695960/share_preview`

Outside applicants must apply through the AMS MathPrograms website:

`https://www.mathprograms.org/db`

. Decisions will be given to U of C students at dates specified on Handshake. Non-U of C applicants will be notified of acceptance or possible wait list status by e-mail by February 22; we adhere to a general agreement among REUs that the deadline for responses to acceptances is March 8. (Any pressure on you to accept an offer anywhere else at an earlier date is unethical.)

THE PROGRAM OF STUDY AND RESEARCH: Students attend lecture series taught mostly by Department of Mathematics faculty. Some research problems and occasionally some problems aimed to aid understanding are introduced. No previous knowledge or study in the areas taught is required. In addition, opportunities for reading and research with graduate students and/or faculty are offered, and regular meetings with graduate student and/or faculty mentors are required.

The apprentice program is similar, but includes material aimed at those with less mathematical experience. It is closely tied to the apprentice course. It lasts five weeks. Its participants are typically freshmen or sophomores who have not been in advanced mathematics courses. Apprentices, especially from the University of Chicago, often participate in the full program the following summer.

All participants in the program are required to write a short mathematical paper on some problem or topic of their own choosing, in consultation with graduate students and faculty. The paper may be either expository or research, but it must be substantial. A first draft must be submitted to mentors by August 19 and the completed paper must be submitted to the director of the program by September 2, unless permission for a later date has been obtained.

The first few weeks have a larger proportion of lectures than the later weeks, setting up background in some areas, giving self-contained presentations in others, and offering many problems. However, there will be activity of one sort or another

throughout the program. Papers are encouraged to be on topics related to the lectures. Collaborative joint papers are very welcome, and it is much more fun writing them.

Graduate student and faculty counselors will be on hand ready and willing to offer help throughout the program. Moreover, each student will be paired with a graduate student or faculty mentor who will meet with the student on a regular basis and will be available to offer tutorials. All participants are *required* to meet with their mentors *at least* twice a week. Topics for papers *must* be discussed with the mentors, first drafts *must* be submitted to them for feedback, and final drafts *must* take their comments into account. These are essential features of the program.

There will be student presentations during the last week of the program. It is hoped that many participants will make presentations. These can be made by individuals or by groups working together.

The program offers a wide variety of material at various mathematical levels. Some is problem oriented, some introduces areas that are not ordinarily encountered in the undergraduate curriculum. There will be lots of problems, including research problems, that students can work on in groups or alone throughout the program — and later!! Students are encouraged to work together and to organize evening and weekend study sessions. Students are expected to spend substantial amounts of time working on projects or problems outside of the lecture series.

The precise program for 2027 has not yet been established. As always, we plan to offer a variety of courses at various levels, arranged into several "sequences". The program will be frontloaded in intensity to maximize opportunities to get started on research problems and papers. Abstracts of talks will be made available as soon as possible, always before the talks are given. At this writing (November, 2025), the list of faculty participants has not been determined. The faculty participants will be announced as soon as possible, but that may not be until May, 2026. Updates will appear on the web site.

Abstracts of courses from the 2002-2026 REU's are on previous years' web pages. As in previous years, there will be courses in many areas of mathematics, presumably including geometry, topology, number theory, probability, logic, and others.

In 2026, the program, was very much as just described. In addition to Chicago faculty, a few speakers not from the University of Chicago gave talks, and that feature is likely to be implemented again in 2027.