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Meet Your New Professors!

Alex Barrios

Alex, originally from Miami, Florida, attended Brown University where he studied Math and Physics. He then went on to grad school at Purdue University before coming to Carleton. Alex is interested in many aspects of math. As a researcher, he works in number theory and Diophantine geometry where he studies elliptic curves and uses them to investigate various questions arising from number theory, including the explicit abc conjecture. Alex, in the time he can spare, likes to run, watch TV, and read science fiction. He also likes to travel and enjoys visiting new places. Alex is excited to be at Carleton surrounded by students who have a variety of interests. He likes incorporating the historical development and philosophical implications of math into his teaching to demonstrate the communal progression of mathematics and the mind-bending nature of the subject. This is possible with students' curiosity and their interests in more than just the fine details of math. Alex is teaching Calc II and will be teaching Calc III in the winter and Linear Algebra in the spring.

Department Tea

Join us on Tuesday, October 16 from 4-5 PM in CMC 206 for a department tea featuring snacks, drinks, and conversation. There is no agenda. Just come to chat and relax for an hour with fellow students and with faculty members.

Graduate School Panel

Do you have questions about graduate school, such as: Do I want to go to graduate school? What can I do with a PhD in Mathematics? What about in Statistics? What about an MS instead? Can I get paid to go to graduate school? How is graduate school different from college? What's graduate school like? On Tuesday, October 23 from 12-1 PM in CMC 209, we'll have a conversation with faculty members about graduate school. Lunch will be served.

Study Abroad in Hungary

Do you want to do a study-abroad during your time at Carleton, but you're not sure how that fits with a math or stats major? You should consider the two sister programs: Budapest Semesters in Mathematics and Budapest Semesters in Mathematics Education! BSM and BSME are both wonderful programs that we send students to every year in beautiful Budapest, Hungary.

If you are interested in applying to either of those programs, you need to fill out three applications: one to the program, one to Off-Campus Studies, and one to our department, the earliest of which is February 3, 2019. There will be an information panel in CMC 206 about the two programs with representatives from those programs attending to answer your questions on January 24, 2019, 3:30-4:30. For more information, look at our department website: math.carleton.edu/curricular/math/resources/opportunities/ or either of the two program websites: budapestsemesters.com and bsmeducation.com. If you have specific questions this fall, ask Deanna Haunsperger at dhaunspe@carleton.edu.

Focus Program

The Focus Program is recruiting a second first-year cohort to apply to start winter term. Applications open Friday, October 5th and are due by Monday, October 15th. Focus students receive many benefits like community, work studies, and potential research opportunities. More information can be found online on the Carleton Focus webpage.

Upcoming Events

Week 6, Tuesday October 16, 4:00 - 5:00pm
Department Tea - CMC 206

Week 7, Tuesday, October 23, 12:00pm -1:00pm
Graduate School Panel - CMC 209

Week 8, Tuesday, October 30, 4:00pm - 5:00pm
Brianna Heggeseth Talk - CMC 206

Job & Internship Opportunities

Research Analyst, Federal Reserve Bank of New York
Research Analysts at the Federal Reserve Bank of New York play an integral role in both the policy and research functions of the Research and Statistics Group. Research Analysts work closely with economists, whose specialties include banking and payment systems, capital markets, international economics, macroeconomics, and microeconomics. Upon leaving the Fed, Research Analysts who choose to apply to graduate school are consistently accepted by top programs; others pursue a wide variety of public- and private-sector opportunities. Research Analysts usually have a strong background in

economics, policy, mathematics, or computer science, though a major in one of these fields is not a necessity. Successful candidates often have previous research experience, and many are considering careers in economic research, public policy, or related fields. In addition, we seek candidates from a wide range of backgrounds, particularly those that are typically underrepresented in economics. It is important to us that we succeed in recruiting a diverse cohort of research analysts each year. Thus we encourage many students with varying experiences and backgrounds to apply. Applications are being accepted now, on a rolling basis, at https://www.newyorkfed.org/research/careers/research_analysts/index.html. It is recommended that candidates apply by October 15.

Accenture, Summer Analyst

As a Consulting Summer Analyst, you'll be helping our clients address the biggest challenges in today's digital age. Your summer analyst journey starts with a preview into the Consulting Development Program (CDP), where you will gain cross-industry experience while building a diverse set of core consulting skills, such as business analysis, process improvement and technical expertise. The program focuses on your personal and professional growth, challenging you to stretch your boundaries and achieve your greatest potential at a rate unparalleled in other entry-level roles. Through collaboration with Accenture leaders and our bright analyst community, you will deliver unique and impactful results to our clients every day. The application deadline is today! More details can be found on the Tunnel.

Blackstone Real Estate, Summer Analyst

The Summer Analyst position is open to Juniors and will work directly with the BREDS Liquids Business, which is responsible for sourcing, analyzing and executing all liquid, real estate-related debt investments on behalf of Blackstone Real Estate. As a summer analyst you will have the opportunity to participate in the investment process for a wide range of US and European real estate debt transactions, with a primary focus on CMBS and RMBS. Apply via the Tunnel by October 15. On-campus interviews will be held on Friday, Oct. 19.

Intuitive Surgical Inc., Financial Analyst Rotational Program

Intuitive Surgical has a really exciting medical device / robotics product and a fulfilling mission to change surgery. Joining Intuitive Surgical means joining a team dedicated to using technology to benefit patients by improving surgical efficacy and decreasing surgical invasiveness, with patient safety as the highest priority. They are looking to hire interns that would want to be part of a 2 year, 4 position rotation program after college, which is an exciting investment in any young professional where four jobs within Finance are guaranteed in two years. For example, a Carleton grad that received an offer out of this intern program could work in FP&A, Corporate Accounting, Treasury, and Data Science all within four years and then Ã¢â‚¬Ëœgraduate' and likely place as a senior analyst in several departments. More information and to apply, visit the Tunnel.

Problems of the Fortnight

To be acknowledged in the next issue of the *Gazette*, please send your solutions to me by noon on Tuesday, October 23.

(1) It is known that in the ancient city of R'lyeh, the residents used a place value numeration system with base fourteen. This required the use of four additional digits, besides those of the Hindu-Arabic base ten numeration system. Thus, the first few natural numbers would be denoted in R'lyeh as follows:

$$0, 1, 2, 3, 4, 5, 6, 7, 8, 9, \sqcup, \natural, \ddagger, \varpi, 10,$$
$$11, 12, 13, 14, 15, 16, 17, 18, 19, 1\sqcup, 1\natural, 1\ddagger, 1\varpi, 20,$$
$$21, 22...$$

Thus a R'lyehan might think to herself, "All my fingers and toes together make 16." Similarly, the numbers we denote by 100, 150, and 5000 here in Northfield would be denoted 72, ⊎⊎, and 1♮72, respectively, in R'lyeh.

Recently, archaeologists unearthed a great stone monolith from the ruins of R'lyeh. It bears, in ominous chiseled glyphs, the remains of what appears to be a market receipt (here translated to English):

"THE PRICE OF 76 PUFFERFISH SHALL BE 40_0_ SILVERS"

The underscores _ above denote a R'lyehan digit which was illegible to translators due to erosion. Is there enough information to determine the price of a single pufferfish in R'lyeh? If so, what was the price (in silvers)? Your answer may be in R'lyehan numeration or in Northfield numeration, but please be clear which you are using.

(2) Take three shapes: a square, a circle, and an equilateral triangle, and inscribe the first within the second, and the second within the third. There are six possible orders in which you can do this. Assuming the innermost shape has area 1, how should you inscribe the shapes to ensure that the area of the outermost is minimal? What is this minimal area?

Many thanks to "Auplume" who solved the second of last week's problems. Unfortunately, I did not receive any solutions from Carleton students... will this week's problems prove more tractable??? I look forward to hearing from you.

-Mike Cohen

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