

UNDERGRADUATE MATHEMATICS SEMINAR

The next meeting of the seminar will be this coming **Thursday, November 1**, with refreshments beginning at **4:45** in the Math Common Room, **Bailey 204**, and the lecture following at **5:00 in Bailey 201**.

In this week's seminar, **Professor John Geddes** from F. W. Olin College of Engineering in Needham, MA will present the following talk:

TITLE: Oscillations in Microvascular Bloodflow

ABSTRACT: The cardiovascular system consists of a central pump (usually known as the heart) and a system of blood vessels through which blood is continuously circulated. As the smallest blood vessels, the capillaries play a pivotal role in mass exchange between the blood and the tissues. Recent experimental observations and numerical simulations suggest that key blood flow variables such as blood pressure, blood flow velocity, and hematocrit can spontaneously oscillate in the absence of any biological control.

In this seminar, I will discuss a recently proposed mathematical model of blood flow in a microvascular network. I will review the major ingredients of this model, including the Fahraeus-Lindqvist effect and the plasma skimming effect. I will then analyze the model in the context of a simple network consisting of four vessels and two nodes. I will focus my attention on exploring the mathematics associated with this project. In order to do so effectively, I would like the audience to consider the following question: do solutions exist to the equation $x = \exp(-x)$, and if so how many solutions are there?

Where Are They Now? Xing Ni Chen '06

I started my MBA in accountancy at the Zicklin School of Business in Baruch College in January 2007. I chose Baruch for many reasons, such as its location, reputation, and cost. In addition to its reputation as one of the best accounting programs in the city, Baruch costs significantly less in comparison to other programs. Moreover, Baruch is located in the heart of Manhattan, allowing me to work part-time while going to school. Overall, I am glad that I made the choice of enrolling in this program.

The courses that I take in the program are closely related to the current financial market. Although courses are taught at a very fast pace, I feel like my undergraduate work in math really prepared me for the challenge, particularly in fostering my way of thinking and helping me to absorb information quickly. While the program includes some pretty intense courses, in my opinion they are not as hard as the problems sets we did in some of the upper level math courses at Union.

Baruch is a city college that combines undergraduate and graduate schools in different disciplines, like a big university. Maybe because of its location or perhaps because of the size of its student body, the atmosphere

feels very different than Union. I encounter traffic all over the campus. I was actually a bit overwhelmed when I saw so many people everywhere on the campus. For introductory business classes, the average class size is about 70 students. In a fair amount of my classes, the professors lecture using microphones and Power Point presentations.

You might ask why I choose accounting. After I graduated from Union, I was not sure of which industry I wanted to work in. I knew that I wanted to find a career in which I could apply what I learned at Union majoring in math and economics. Although I enjoyed my experiences at Union, especially in the math department, it was a bit difficult for me to target and commit myself to a specific industry because both of my majors are kind of broad. I tried out a couple of jobs, but none of them interested me. For a period of time, I was second guessing myself for the decision of not applying a graduate school.

Then, one day a recruiting agency called Turtle helped me find a position as an assistant to the legal auditor of the legal finance department in UBS Financial. This department audits the legal bills, including all of those in

the United States, for UBS. My responsibilities included analyzing many types of invoices, suggesting revisions to bills, and interacting with project managers and accounting staff, among others. Because I enjoyed working there, I decided to consider a career in accounting. In particular, I want to be an auditor.

While working there, I did a lot of research about the profession. You need to obtain a CPA (Certified Public Accountant) designation if you want to be considered seriously in this profession. In order to get the CPA designation in New York, you must fulfill a set of requirements, and a degree in accountancy is one of them. This is the reason I applied for the program in accountancy in Baruch.

If you are considering looking for a job after graduation, I would recommend start researching about industries and professions while you are still in school. First of all, researching into the possible professions you want to pursue before graduation can make your job hunting process much more efficient. You will have tailored resume and cover letters to the specific industries you are legitimately interested in. It will save you time by preventing you from jumping into something you might not like. Secondly, it is much easier for you to find a job from campus recruiting. If you already know the

professions you want to explore, Union's career center can be very helpful for you to get into some big companies. When you step out of the campus, you have to compete with thousands of applicants in the job market, and the chance of somebody reviewing your resume is very slim. Many big companies designate recruiting managers for each campus, so when you apply through school at least you know that your application will be reviewed.

I am currently applying to a couple auditing positions for next fall through the Baruch career center. I just received invitations to interviews invitation with some of the biggest accounting firms in the country. While their interview processes are extremely competitive, hopefully I can get a job offer from any one of them. At that point, I can concentrate more on my studying without worrying about job hunting.

Finally, I wish you all good luck in whatever you choose to explore. Besides being the financial center of the country, New York also has a lot of great restaurants. I am more than happy to show you around if you consider working in New York City or just visiting. If you have any questions about master programs in the city or general career questions, feel free to contact me:

chen.xingni@gmail.com

Resources for Students

- How Can I Use this Math? On the second floor bulletin board of Bailey Hall there is a series of posters from the American Mathematical Society's MathMoments series explaining how math is used in, for example, "Finding Fake Photos", "Putting Music on the Map, and "Pinpointing Style". Accompanying these posters are **online podcasts** of interviews with mathematicians explaining these subjects in more detail. To hear these podcasts, visit <http://www.ams.org/mathmoments>.
- Lehman Brothers Summer Analyst Internships in Capital Markets or Investment Banking application deadline: October 31! On behalf of Eric Miller '90 and Robin Scheman '85 from Lehman Brothers, the Becker Career Center would like you to be aware of these internships and their imminent deadline. Lehman Brothers alumni strongly encourage you to have your resume and cover letter critiqued by a career center staff member before the application deadline. Feel free to call the office to make an appointment (518) 388-6176.

Problem of the Newsletter: October 29, 2007

Congratulations to **Schuyler Smith** (and an honorable mention to **Ronghua Dai**) for submitting correct solutions to most of the parts of last week's problem on normal magic squares. You can view his winning solution on the first floor bulletin board in Bailey Hall. The remaining part of last week's problem (finding the entry in the center box of an *odd x odd* sized normal magic square) will remain open for students to continue working on!

Here is this week's problem: This week's seminar speaker posed a problem – let's use it, and add an extra piece to it as well: Do solutions to the equation $x = \exp(-x)$ exist, and if so how many solutions are there? If you claim there are solutions, find them (or at least give an approximation accurate to three decimal places – and see if you can do this without any electronic equipment!).

Professor Friedman will accept solutions to this problem until 12:00 noon Friday, November 2nd. Email your solution to him (friedmap@union.edu) or put it in his mailbox in the Math Department's office on the second floor of Bailey Hall.