



Director: Dr. Alina Duca

Editor: Trisha Clinckscales

Summer of a lifetime



For as long as I can remember, I have always been passionate about math and fascinated with the idea of using logic and perseverance to solve different kinds of problems. As I progressed through school, my interest for mathematics continued to grow and develop; each class presented a new set of challenges and techniques for solving particular problems and I was eager to expand my personal skill set. Until it came time to apply for college, I had not fully thought about the possibility of pursuing mathematics as a major and the options I had for transforming my passion into a career.

Entering college as a freshman, I decided to pursue mathematics as a major but was still unsure what careers I could

pursue, other than academia. I was fortunate enough to have an incredible academic advisor, Dr. Scroggs, who not only informed me of the numerous careers I could pursue; but also, encouraged me to pursue unique internship opportunities every summer. It was through these working and research experiences that I quickly discovered which kinds of jobs I enjoyed and which were definitely not for me. The summer after my freshman year, I completed biostatistics research at Johns Hopkins University and completed the Students Interested in Biostatistics program offered at North Carolina State University. Although they were both wonderful experiences, I learned that I wanted a career in which I could interact more with people and one in which I could more directly see the impact of my work.

This past summer, I had the incredible opportunity to intern at Walmart at their headquarters in Bentonville, Arkansas. More specifically, I worked as an Analytics Intern on the Test & Learn Global People Analytics Team. Through this experience I was able to work directly with statistical software to properly analyze data, and collaboratively work with my team members to create a professional summary report of our projects to be presented to leadership for executive decisions. I was personally responsible for two particular projects, one in which I used the analytical software tool Alteryx to create an application that can clean international data sets of

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Mathematics Courses – Spring 2015

NOTE TO ALL MATH MAJORS:

IF YOU PLAN TO TAKE MA 225 - FOUNDATIONS OF ADVANCED MATHEMATICS FOR THE SPRING SEMESTER ARE **STRONGLY ENCOURAGED** TO ENROLL IN ONE OF THE FOLLOWING SECTIONS:

<u>MA 225.002</u>	<u>MWF</u>	<u>11:20 - 12:10</u>	<u>SAS 2102</u>	<u>Dr. Fenn</u>
<u>MA 225.003</u>	<u>TH</u>	<u>11:45 - 1:00</u>	<u>WN 5</u>	<u>Dr. Fenn</u>

THE CLASSES BELOW MAY BE USED AS ADVANCED MATH ELECTIVES

MA 325. An Introduction to Applied Mathematics	12:25 – 1:15 MWF	Kang
MA 401. Applied Differential Equations II	8:05 – 8:55 MWF	Norris
	11:20 – 12:10 MWF	Lin
	1:30 – 2:45 TH	Brown
MA 402. Computational Mathematics	3:00 – 4:15 MW	Gremaud
MA 408. Foundations of Euclidean Geometry	3:00 – 4:15 TH	Fenn
MA 410. Number Theory	11:45 – 1:00 TH	Kaltofen
MA/CSC 416. Introduction to Combinatorics	10:15 – 11:05 MWF	Liu
MA 421. Introduction to Probability	1:30 – 2:20 MWF	Paur
MA 426. Mathematical Analysis II	12:25 – 1:15 MWF	Paur
MA/CSC 428. Introduction to Numerical Analysis II	1:30 – 2:45 TH	Chu
MA 432. Math Models in Life and Social Sciences	11:45 – 1:00 TH	Shearer
MA 437. Applications of Algebra	9:10 – 10:00 MWF	Liu
MA 451. Methods of Applied Mathematics II	1:30 – 2:45 TH	Haider

The following **graduate courses** are offered in the spring and may also be used as advanced math electives:

MA 501, MA 502, MA/OR 505, MA 512, MA 513, MA 515, MA 520, MA 521, MA 537, MA 544, MA 547, MA/FIN 548, MA/FIM 549, MA 555, MA/CSC/OR 565, MA/BMA 574, MA/CSC 580, MA 587.



Need Access to the Math Undergraduate Lounge? If you are a new or continuing Math Major who has not already requested access to the Undergraduate Lounge, you need to see Di Bucklad in SAS Hall 2108.

MA 537: Nonlinear Dynamics and Chaos**Instructor: Dr. James Selgrade**

In recent years there has been an explosion of interest in nonlinear behavior, chaos, and fractals in the physical and biological sciences. Chaotic behavior has been observed in disciplines as diverse as meteorology, medicine, and economics. These phenomena may be introduced at an elementary level because often they are described by nonlinear difference equations which are discrete dynamical systems and are analyzed by studying iteration of functions. The course will introduce appropriate mathematical concepts, e.g., equilibrium, stability, bifurcation, and fractals. Software will be available so that students can perform computer experiments and discover for themselves the fascinating behavior of nonlinear dynamical systems.

MA 544: Computer Experiments in Mathematical Probability**Instructor: Dr. Jack Silverstein**

The intent of the course is to reveal to the student the virtues of using the computer to gain insight into mathematical behavior. Examples will be chosen from topics in probability theory that are either not typically covered in courses, or not having a complete mathematical treatment at the present time. For further details go to www.math.ncsu.edu/~jack/ma544.html and/or contact the instructor. This course satisfies the writing and modeling requirements.

MA 402: Mathematics of Scientific Computing**Instructor: Pierre Gremaud**

Catalog description: Web search engines are built on linear algebra; from cell phones to JPEGs, Fourier analysis permeates our digital world. In this new one- semester course, you will learn about the mathematics of some of the fundamental tools of scientific computing that made these (and other) technological advances possible. Topics to be covered include: classification, dimension reduction, Monte Carlo, regression and Fourier analysis. Each technique will be paired with a project stemming from an actual application. The "Big data" era is here: learn how to solve quantitative problems and analyze data.

Prerequisite: MA 341 or MA 405, and programming proficiency (MATLAB, C++, Java, Fortran, or other language)

News from the Math Honors Program

Director: Dr. Sandra Paur

Website: <http://www.math.ncsu.edu/honors>

Congratulations to our May 2014 graduates: Jason Barlow, Alex Chin, Jordan Gower, Michael Lindsey, Bobby O'Brien, Chris Paquette, Faye Pasley, Allison Saito and Nathan Sherrill. Our Summer I and Summer II 2014 graduates are Brett Yarchin and Christian Chapman respectively.

Jason and Nathan are doing graduate work in physics, Alex is doing PhD study in statistics at Stanford, Michael Lindsey is doing a PhD in math at the University of Pittsburgh, while Chris Paquette and Faye are doing a PhD in math at NC State.

Jordan and Bobby are looking for jobs and Brett is working at EPIC in Wisconsin. Allison is doing a PhD in economics at Duke and Christian is doing a PhD in electrical engineering at Arizona State.

Welcome to our new students in the Math Honors Program include Ryan Cinoman, Darien Elderfield, Trevor Gasdaska, Cori Krause, Drew Marquis, Anthony Powell, Georgy Scholten and Monica Wang.

Twenty-nine students are currently participating in the Math Honors Program and invitations to join the program will be extended sometime during pre-registration. Every year approximately 20-25% of math graduates complete the Math Honors Program and about 80% of those students go on to graduate school. Schools they have attended include Berkeley, Princeton, Stanford, MIT, Cornell, NYU and UCLA. Math honors students have received 13 NSF Fellowships and four DoD Fellowships for graduate school as well as six Goldwater Scholarships and two Gates Fellowships. Besides taking more challenging courses to complete their math degrees, Math Honors Program students also do research either at NC State or in a summer REU Program (Research Experience for Undergraduates). More than 30 students have completed a study abroad program focusing on mathematics, either at the Budapest Semesters in Mathematics or the Math in Moscow Program.

Participation in REUs, BSM and similar programs has played a major role in the success of our students in getting accepted into excellent graduate schools. Dr. Paur is happy to talk to any student interested in participating in the Math Honors Program – stop by her office in SAS 3144 or email her at sopaur@math.ncsu.edu for an appointment.



Important Dates to Remember

Spring 2015 Registration: It is time to schedule a Registration Advising Appointment with your Academic Advisor! Secure your appointment well in advance of your Enrollment Date (check in MyPack Portal).

Oct 17 – Last day to drop a class with a W

Nov 26, 27 – Thanksgiving Holiday, no classes

Dec 3 – Last day of classes

Dec 8 - 16 - Final Exams

Jan 7 – First Day of Spring semester



MAA
MATHEMATICAL ASSOCIATION OF AMERICA

MAA Section News

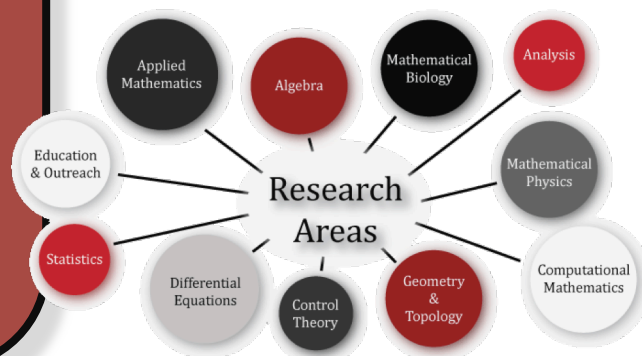
The University of North Carolina at Greensboro

10th Annual Regional Mathematics and Statistics Conference

OPEN TO UNDERGRADUATE & GRADUATE STUDENTS

Lectures and talks on any topic in mathematics and statistics

For more information about the conference please visit the conference website or email Jan Rychtar at rychtar@uncg.edu



Nebraska Conference for Undergraduate Women in Mathematics

Purpose:

Encourage and mentor undergraduate women to pursue graduate study in mathematics and seek mathematical careers

Discussions:

Choosing a Mathematics Graduate Program
Careers Using a Graduate Degree in Mathematics

Registration:

Opens Oct 6 and closes when capacity is reached

Expenses:

Most local expenses are covered and some travel support is available

For more information to register, visit www.math.unl.edu/ncuwm

SAMSI's Undergraduate Workshop

Date: February 26-27, 2015

Location: SAMSI, Research Triangle Park, NC

SAMSI will offer this two-day undergraduate workshop on topics of current interest in statistics and applied mathematics. In addition to an overview of current and planned SAMSI Research Program, the program topic Program on Mathematical and Statistical Ecology (ECOL) will be covered in some depth. Please send questions to: ugworkshop@samsi.info

Undergraduate Research & Creativity Symposium

Event: Undergraduate Research Symposium

Date: Saturday, November 22, 2014

Purpose: Great opportunity to present an abstract of your work to the NCSU community

Registration is Now Open

Abstract Deadline: Noon, October 31, 2014

More Info: www.sncurcs.org



WOULD YOU LIKE TO TEACH MIDDLE SCHOOL HIGH SCHOOL



UNIVERSITY OF NORTH CAROLINA

The **Noyce Mathematics Education Teaching Scholarship** could provide you with the funds to finish your last two years of an undergraduate or to get a Masters degree to teach mathematics.

Undergraduates receive \$36,000 for the last four semesters of their programs. They must pursue a double degree in mathematics education and mathematics or statistics and maintain an overall GPA of 3.0. After graduating, they will teach in a high-needs school district for four years.

\$25,000 scholarships are also available for students who have a degree in a science or mathematical field and are interested in pursuing a Masters degree in Mathematics Education that leads to an initial license to teach middle or high school mathematics. Students who receive this scholarship will teach for two years in high-needs school district after graduating.

Applications for Spring 2015 cohort are due November 7, 2014. Check for eligibility and application requirements on the website: <http://poe.ced.ncsu.edu/noyce/>



Meet Betsy Alexieff

As a Math and Physics Advisor in the College of Sciences, I have some advising suggestions that I feel are applicable to first year through graduate students.

As we are half way through the fall 2014 semester, I would like to focus on the issues of self - evaluation, action plans to maintain and/or improve grades and registration for the upcoming semester. Keep in mind, suggestions stem from the fact that there are only eight weeks left in term!

The University encourages instructors to provide students with feedback via online Progress Reports. The purpose of the progress reports is to let students know where they stand in a course in relation to: attendance, quiz, and test grades.

- If you have received a progress report, then you are aware of your status in a class.
- If you have not received a Progress Report in a class, do not assume that you are doing well! Many instructors do not utilize the system and depend on students to keep track of their own progress and to communicate if there is concern.
- As a result, please use the week following Fall Break to conduct research on your current standing in each course and engage instructors.
- Participate in study groups with classmates. None exist? Then take initiative and create one!

Elizabeth (Betsy) Alexieff

Academic Advisor

Location: Riddick Hall

Suite 319-G, Office 319-E Phone: [919.513-2848](tel:9195132848)

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~ Summer of a Lifetime ~

What
math
majors
say...

various formats and then properly analyze the data by implementing A/B testing methods on the “clean” data. Secondly, I contributed to developing an instructional training program for Walmart associates whom want to learn APT, an analytical testing tool. My past work experiences, and more specifically my hands-on analytical experiences at Walmart have solidified my desire to pursue the Masters of Science in Analytics program at North Carolina State University as the next step in achieving my long term goal of obtaining a challenging analytical position.

When I picture my dream job, I envision one in which I am able to use both my strong analytical skills and extensive interpersonal skills to make a difference in the world around me. If I hadn't actively pursued internship opportunities throughout my undergraduate career, I may not have discovered that this dream job could become a reality. I now know that I want to work as an analyst for a corporate company and ultimately work my way up to a larger management role. I encourage all mathematics majors to pursue unique experiences and opportunities, outside of school, as you progress through your courses. Applying your new knowledge to a real work environment is in my opinion the best way to significantly improve and shape your technical and interpersonal skills. Before you know it, you'll be graduating wanting to know what is next

Lauren Williams

Park Scholar
Class of 2016

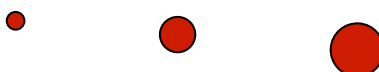
SUM Club --- Society for Undergraduate Mathematics



The SUM Club of NCSU is dedicated to bringing together undergraduate students who have a common interest: mathematics.

Open to any student, math major or otherwise, we meet on the first Thursday of every month to get to know one another, do a math puzzle or two, discuss opportunities within the college, and plan events for the club and the community. The club is led by President *Ben Pierson* and Vice President *Jessica Miller*, with the assistance of its faculty advisor *Dr. Molly Fenn*.

The club plans to host a variety of events, including a Career Development Center Information Session on Careers in Math. More information can be found in the career corner section of this newsletter. We wish to grow in the community as well and volunteer as tutors for local schools and STEM programs. From bowling to movie and game nights, we hope to continue to create a strong undergraduate connection within our field and bring together students within the university. We would love to see more people involved! Email us at sumclub@math.ncsu.edu with any suggestions, comments, questions, or to be added to our email list.



NC State Trivia

The construction of SAS Hall was completed on

- a) Fall 2009
- b) Summer 2009
- c) Spring 2009

Submit your answer to tlclinks@ncsu.edu

All winners will be placed in a drawing on Fri Nov 21, 2014 for a prize.



UNDERGRADUATE PROGRAMS IN MATHEMATICS

Mathematics Department

Campus Box 8205

Raleigh, NC 27695