NC State Undergraduate Mathematics

Spring 2017

Newsletter

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SUM CLUB
NC STATE

SUM Club Career Panel

What can you do with a degree in math? The number of career options are infinite! On Wednesday, March 29 from 5:30-7 p.m. in Poe Hall, Room 211, there will be a panel of professionals in the workforce with degrees in mathematics sharing their experience and how they used their math degree. The Society for Undergraduate Mathematics Club (SUM Club) is partnering with the Career Development Center for the third annual Career Panel to bring awareness about career opportunities for math majors.

The panel will include professionals from a variety of companies, including SAS and Maxpoint. Take this opportunity to learn how to improve your resume, make yourself more competitive on the job hunt, and what you can do now while in college to prepare for graduation. Krispy Kreme doughnuts will be provided!

2017 National Math Festival

The 2017 National MAA MathFest is a free, public event that brings together some of the most fascinating mathematicians of our time to inspire and challenge participants to see math in new and exciting ways. The festival comprises more than 80 unique events for all ages, including performances, demos, games, puzzles and mathletic events. MathFest also offers dozens of lectures on the playful side of math, as well as many different applications of math, from eyesight to drag racing to DNA modeling to the jazz of physics to epidemiology and much more!

MathFest will run from 10 a.m.-7 p.m. on Saturday, April 22, 2017 at the Convention Center in Washington D.C. To learn more, visit nationalmathfestival.org.

Volunteer with the National Museum of Mathematics at MathFest

MoMath is looking for enthusiastic, math-savvy volunteers to help visitors enjoy a variety of hands-on, interactive exhibits and allow them to discover the wonder and beauty of mathematics. High school students and adults are welcome to sign up at dcvolunteers.momath.org.

national math festival

Sonia Kovalevsky Day 2017

The Association for Women in Mathematics (AWM) Student Chapter at NCSU is hosting a Sonia Kovalevsky (SK) Day. In honor of Sonia Kovalevsky, the first female to receive a Ph.D. in mathematics, SK Days are hosted nationwide to encourage young females to take part in the mathematical sciences. It is a national AWM event which invites 7th-8th grade girls from local middle schools for a day of math games, workshops and talks. This year, SK Day will be held on Saturday, April 8, 2017 from 8am-12pm. Interested in getting involved in SK Day? Contact Anila Yadavalli at *ayadava@ncsu.edu*.

AWM
ASSOCIATION FOR WOMEN IN MATHEMATICS

SK Day Spring 2015

DataFest 2017

DataFest is a data analysis competition where teams of up to five students have a weekend to attack a large, complex, and surprise dataset. It is a great experience with lots of free food, fun, and the chance to win prizes. Undergraduate students of all academic backgrounds are welcome to participate. Having some experience with data analysis, computing, or simply being willing to think outside the box will be helpful. DataFest 2017 will be held March 31 - April 2 at The Edge at Duke University. Interested or curious? Contact Dr. Herle McGowan at hmmcgowa@ncsu.edu or visit bitly.com/datafest.

Kerry Baker is a senior studying mathematics.

A Semester Abroad: Kerry Baker

It has definitely been the best decision I have ever made to study abroad. Ireland has opened up so many new doors for me; being that connections I have made to further my career or just friendships that will last a lifetime. I was nervous to travel abroad at first, like many students are, and I found myself uncomfortable with the introvert I had become over the years. I used to be so busy at home in Raleigh with work, school, SUM Club, and other extracurricular activities that I would enjoy my time alone. But here in Cork, I have so much more free time to travel and get to know the people around me and I've come to truly love and appreciate that freedom.

The courses that I'm taking are vastly different to NC State's. We have no homework, maybe 1-2 tests, and the classes are comprised of more students, around 60-100, and are less engaging. This basically means more studying and time spent teaching myself—which are my least favorite things to do. I'm taking Mathematical Analysis I, Fourier Methods —which is turning out to be more challenging than I first thought—, Intermediate Macroeconomics, and Travel Writing. All of these courses are required for me to complete my BS in Mathematics and minor in Creative Writing. However, many students traveling from the US and abroad had the opportunity to partake in elective courses ranging from Archeology to Gaelic. Although I would have really enjoyed taking classes such as those, I'm grateful that I had the opportunity to take the minimum amount of credits my final semester and focus on traveling.

Math has always been my passion, even in times when I'm participating in a difficult course and it seems like I'll never understand what's actually going on, I've always loved the challenges it's given me. It's super corny to say, but to me math is the language of the universe. I also study creative writing in university, and I have so far found that no combination of words can capture what math truly means to me. It's more of a feeling—completing a complex proof or finally getting the correct answer on probability homework and actually understanding the steps it took to get it—there will never be anything like the satisfaction that math gives me. I find that wherever I go there are people that feel the same way about math as I do. There are times when you just want to quit and focus on a degree in some other less demanding subject, but for me it's about perseverance and proving to myself that I can do more than I think I am capable of.

Here in Ireland, I have befriended graduate students studying abroad, and it's comforting to see that they struggle in the same classes and excel in the same areas as I do. Math is universal even when your native language is not.

Advanced Math Electives

MA 430: Mathematical Models in the Physical Sciences

Dr. Ronald Fulp
TTH 11:45 a.m.-1:00 p.m.
Prereqs: MA 242, basic matrix algebra, and a single course in Physics

This course will focus on the following three topics. (1) Newtonian Mechanics: Linear Euclidean geometry and inertial observers, velocity and acceleration relative to arbitrary observers and their specialization to inertial observers, conservative fields, central fields. (2) Differential forms: differential forms, wedge products, exterior derivatives, pullbacks; a brief review of the vector operations gradient, curl, and divergence from MA 242, a re-examination of these ideas using differential forms, proofs in this section are de-emphasized in favor of applications to vector calculus such as a generalized Stokes Theorem. (3) Maxwell's Equations: no previous knowledge of these equations is required, they will be thoroughly discussed in integral form, vector calculus form, and utilizing differential forms.

MA 493: Combinatorial Game Theory

Dr. Ricky Liu
TTH 10:15-11:30 a.m.
Prereqs: MA 225

An introduction to the study of combinatorial games–games of no chance with perfect information. Topics include: basic strategies, outcome classes, the arithmetic of games, canonical forms, surreal numbers, impartial games, temperature and all-small games.

Career Ambassador Program

The NC State Career Development Center offers a multitude of resources to students on professional development topics like resumes, interviewing, the job search and others. One unique opportunity that the Career Center offers is the Career Ambassador Program. Prem Shah, a senior studying math and statistics, has been a Career Ambassador (CA) for four semesters now and shares his experience in the CA program:

What I love the most about the CA program are our advisors/mentors, who play a huge role in creating a supportive and challenging environment that has helped me grow as a student and professional. Through working with the CA family, I have developed my presentation, communication, and leadership skills and any other professional buzzword you can think of. Each semester, I am challenging myself to accomplish something new and try to grow in areas that I haven't already. This semester, as one of the "older" ambassadors, I find myself tackling issues like crafting new presentations, mentoring the new CAs, and evaluating the progress of my peers.

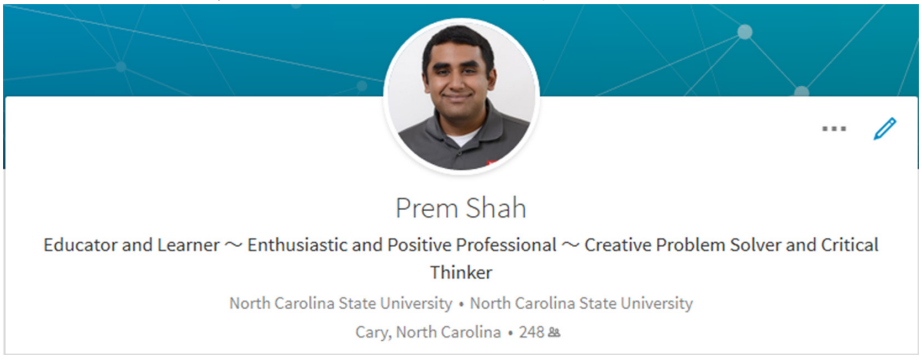
This experience has been an integral component of my professional development, and I would not have secured a job offer for after graduation without my experiences in the CA Program.

The position posting is live on ePACK until April 2 (search "Career Ambassador" in ePACK). If you have any questions, contact Ben Dictus, Career Ambassador Coordinator, at bjdictus@ncsu.edu.

The Power of LinkedIn

Are you concerned or worried about gaining relevant work experience while in college? There are many ways to search for opportunities for full-time jobs, internships, or research opportunities, such as through online job boards and responding to printed job advertisements. However, the most effective method of finding a job is through knowing and talking to people, i.e. networking! Consider this: have you ever found a job or an opportunity because of someone you knew? You most likely have. In fact, 80% of jobs and 65% of internships are found through networking.

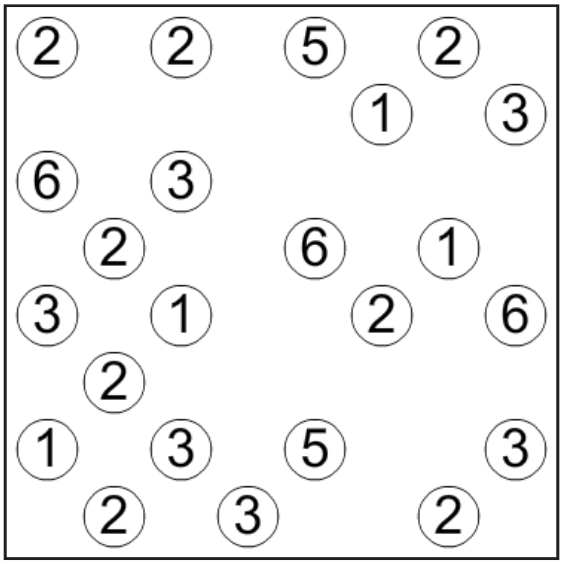
Networking is a powerful tool to practice and get comfortable with while in college to make it a regular part of your job search. LinkedIn is an online professional social media platform and is a crucial part of a student's arsenal for practicing and utilizing networking. Do you want to get started on building your profile or learn more about the ways you can optimally utilize LinkedIn? On Wednesday, March 22 from 5:30 - 7 p.m., attend a Learning LinkedIn workshop for new and advanced users of LinkedIn, hosted by Career Ambassador and math major Prem Shah. Questions or concerns? Contact Prem at phshah@ncsu.edu.

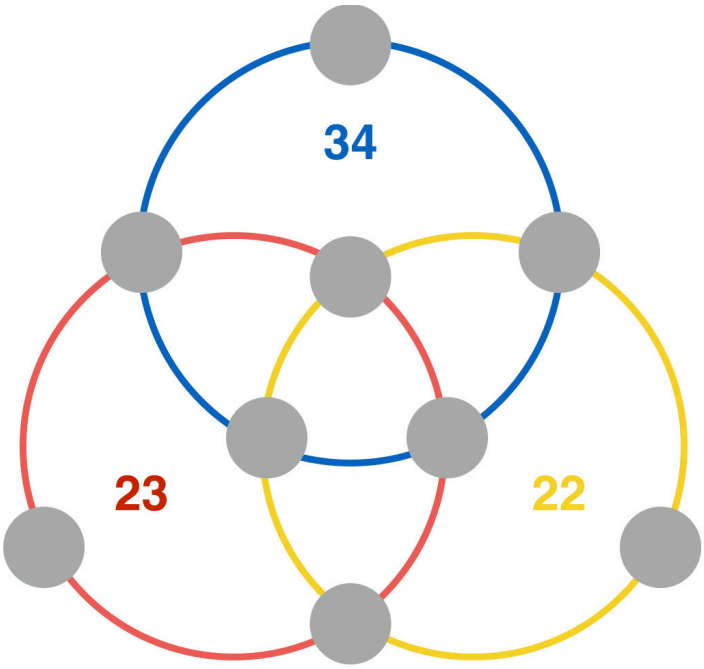


Puzzle Page

Hashi

Draw vertical or horizontal lines connecting circles. The number of lines connected to one circle should match the number of the circle. Lines cannot cross another line or circle.





Round About

Place the numbers 1-9 in the gray circles such that the numbers along each circle outline adds up to the corresponding number in the circle.

Solutions to puzzles on next page.

Mathematical Insights Club

The Mathematical Insights Club (MIC) aims to create a community of curious undergraduate students who want to delve deeper into the field of mathematics. It will be centered around mathematical papers, math history, and fun math readings (for example excerpts from "War Stories of Applied Mathematics," "Famous Puzzles of Great Mathematicians," etc). We call it MIC because at meetings club members will have the platform to summarize papers or readings they have found intriguing! Visit https://www.facebook.com/MICncsu/ for more information, or email mic.ncstate@gmail.com.

Actuarial Club

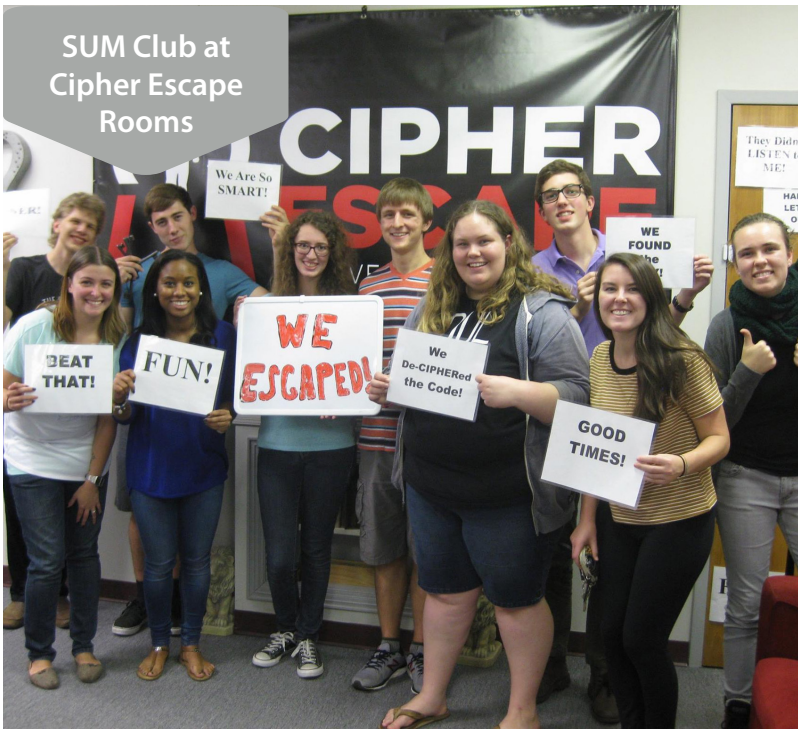
Want to be an Actuary? Consider joining the new Actuarial Club! This group will learn more about the actuarial profession, hear from local actuaries, and be a support group for actuarial exams and actuarial internship/job applications. Contact ktshevli@ncsu.edu.

Society for Undergraduate Mathematics

The Society for Undergraduate Mathematics (SUM Club) is NC State's premier student organization for those with a passion for math. We help bridge the gap between undergraduates and the rest of the university and provide students with opportunities for growth in academics, service, and leadership. This is accomplished through mathematical presentations at meetings, career events, social get togethers, and other college- and university-wide involvement.

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 plans to host a variety of events, including collaborations with the Career Development Center and the Statistics Club. We wish to impact the community as well by volunteering and tutoring at local schools and STEM programs.

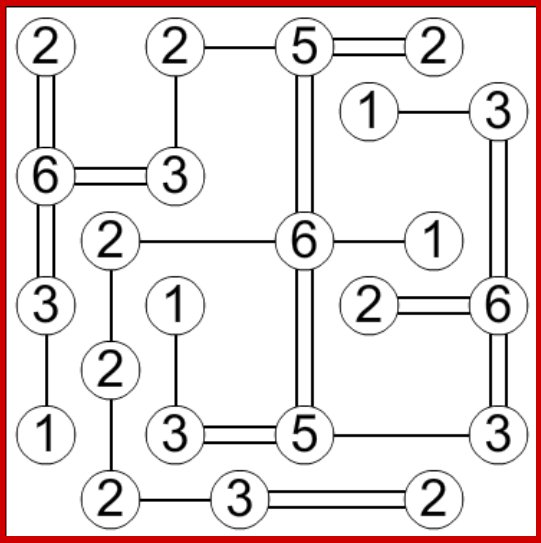
From bowling to movie and game nights, we hope to continue to create a strong undergraduate connection within our field and bring together students within the university. We would love to see more people involved! Email us at ncsusumclub@ncsu.edu with any suggestions, comments, questions or to be added to our email list.



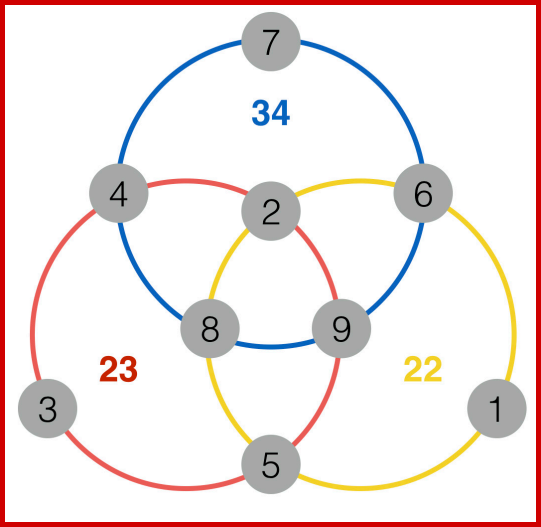
SUM Club at Cipher Escape Rooms

Puzzle Solutions

Hashi



Round About



Note: There are 8 solutions, which you can get by swapping 4 and 9, 2 and 5, as well as 3 and 6.

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Have newsletter feedback? Email ncsusumclub@ncsu.edu for questions, comments or recommendations.