New Mathematics Student Orientation
Monday, September 21, 2015
Welcome UCI math majors!
Orientation Agenda

- I. Careers in Mathematics
- II. Overview of the Mathematics Department
- III. Degree Requirements
- IV. Administrative Policies and Procedures
- V. Online Resources
- VI. Tips for Success in Math Courses
- VII. Mathematics Opportunities
- VIII. Questions
Congratulations for being a math major!
Beyond the specific content knowledge (algebra, analysis, linear algebra, probability, computing, etc), math majors develop a variety of skills:

- problem solving
- thinking logically
- high level quantitative and numerical skill.

This opens the doors to many careers...
Careers in Mathematics

- High School Math Teacher
- Community College or College Math Professor
- Actuary
- Quantitative Analyst
- Software Designer
- Biostatistician
- Government Lab Researcher
- Financial Analyst
- Industry Analyst/Engineer
- Education Materials Developer
- Industry Consultant
Companies Employing Mathematicians

- High Schools, Colleges, Universities
- NSA
- Government Labs
- Microsoft
- IBM
- Raytheon
- ALEKS
- Eastman Kodak
- NASA

- Aerospace Corporation
- Northrup Grumman
- Proctor and Gamble
- Theta Engineering
- Texas Instruments
- LL Bean
- Allstate Insurance
- Goldman Sachs
Forbes published a list of the 200 best jobs for 2014. The classification is based on various factors, including

- Salary
- Potential growth
- Competiveness
- Physical demands
- Work conditions
- Amount of travel required
- Security of employment ...
Mathematician
Tenured university professor
Statistician
Actuary
Audiologist
Dental Hygienist
Software Engineer
Computer System Analyst
Occupational Terapist
Overview of the Mathematics Department
~ 37 Senate Faculty Members
~ 22 Adjunct Faculty Members

Lecturers, Instructors, Visiting Assistant Professors...

+ several postdoctoral scholars...
~ 110 Math Graduate Students

- Ph.D. or master in mathematics
- TAs for your courses
~ 600 Undergraduate Math Majors
Degree Requirements

- 6 tracks for your major
- $\infty$ mathematical possibilities
Math Major Requirements

Lower division

- 2A,2B – Single Variable Calculus
- 2D – Multivariable Calculus
- 2E – Multivariable Calculus (*)
- 3A – Linear Algebra
- 3D – Differential Equations
- 9 – Computer Programming
- 13 – Intro to Abstract Math
- 1 year Physics 2/7 or Chemistry 1

(*) Students in Math and Education take Math 8 instead
Upper division

- 120A – Abstract Algebra
- 121A – Linear Algebra
- 130A – Probability
- 140A,B – Real Analysis
- Plus additional classes dependent on your track

Talk with an advisor to select upper division courses appropriate to your career goals
Mandatory Advising

**Sophomores**
- 3 sessions of Group advising

**Juniors**
- One-on-one 20 minute advising with a faculty member

*Junior/sophomore status depends on the number of units*

*If you receive an email inviting you to attend, then you must go... no matter what year you are in...*
Concentration/Specialization or (pure) math major?
If you do not declare any concentration or specialization, then you are automatically doing the math major.
(Pure) Math Major

...is designed for students seeking both depth and breadth in their mathematical education.

• It leaves your career options after graduation wide open
• It gives you the most freedom in terms of electives
• No forms are necessary

For graduate school, follow the honors track.
Concentration in Mathematical Finance

...is designed for students with a strong interest in mathematics who would like to use their mathematical background to obtain a solid foundation in the fundamentals of modern economics.

Options after graduation include:
• direct employment in the business world,
• MBA program,
• Graduate school in math or economics.

Students often double major in math and quantitative economics
Specialization in Mathematical Biology

...is designed for students interested in math and computations, and applications to biological systems

For careers involving mathematical and physical modeling of biological systems
Specialization in Applied and Computational Mathematics

...is designed for students interested in math and its applications to science/engineering

**Careers:**
- PHD in applied math
- Master in applied math/computing/engineering
- Direct employment in areas of computing/engineering.
Concentration in Math for Education/Secondary Teaching Certification

...is designed for students wishing to earn a bachelor degree and teaching credentials (all in 4 years)

Careers: middle school and high school mathematics teachers

STEP 1: Enroll in PS 105 this Fall

Martha Martinez
Email: mgmart@uci.edu
Specialization in Math for Education

...is designed for **Prospective Math Teachers**. Choosing courses carefully, you may complete the “Math Subject Preparation Program” (SMPP) and waive the math subject exam for teachers (CSET). *1-year post-bac program needed to earn teaching credentials*

Careers: middle school and high school mathematics teachers
For students interested in graduate school in (pure) mathematics

Careers: academic career, research labs, NSA...

Earn distinction upon graduation by...
- completing special course requirements
- earning a high GPA
- complete a research experience.
Administrative Policies and Procedures
Undergraduate Program Coordinator

Michael Vo
Office: Rowland Hall 340B
M–F 7:30AM–12PM, 1PM–4:30PM
Phone: 949–824–6770
Email: myv@uci.edu

- Enrollment issues
- Prerequisite Clearing
- Instructor/TA concerns
- Specialization/Concentration issues
Math Department Office

Administrative Suite:
Rowland Hall 340
(949) 824–5503

Office Hours:
M–F 8AM–12PM, 1PM–5PM

• Concentration/Specialization Applications
• Math 2A/2B Make-Up Exam Requests
• Undergraduate Petitions
Physical Sciences Student Affairs Office
Academic Counselors

Office: Rowland Hall 134
Phone: 949–824–6507
Email: pssazot@uci.edu

- Degree requirements and course planning
- Exceeding units
- Graduation requirements
- Withdrawal, Dismissal, Readmission
- Degree Audit Issues
Enrollment

• Enrollment Policies
ADD/CHANGE/DROP electronically (Webreg) by the end of week 2

• Waitlists

• Repeat Policies
### Enrollment Request

<table>
<thead>
<tr>
<th>ENROLLMENT REQUEST</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drop</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Variable Units</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Grading Option</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch Sections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Use WebReg. No fee applies.**
- **Enrollment Exception Request required. $3 fee applies.**
- **Enrollment Exception Request required. $3 fee applies. Withdrawal from course with "W" grade. Action unavailable.**
Always read the Mathematics Department Comments on the Schedule of Classes (http://websoc.reg.uci.edu)

REPEAT STUDENTS: If your grade was an F, enroll on September 19, as space permits. If your grade was between C- and D-, enroll on the first day of class, as space permits, via WebReg. An alternative is to retake the class in Summer Session.
Online Resources
Math Website: www.math.edu
Math Website: www.math.edu

- Office hours and locations
- Sample course syllabi
- Calculus course information
- Course offerings and descriptions
- Enrollment Policies
- Math Major resources and opportunities
Math Website: www.math.edu/undergraduate
Math Website: www.math.edu/undergraduate

- How to find research opportunities (both at UCI and off campus)
- How to find Internships
- How to prepare for graduate school
- Info on careers suitable for math majors
- Job search resources
- Info on scholarships
Tips for success, and support centers
Academic Integrity

WHAT IS ACADEMIC INTEGRITY?

https://youtu.be/GU5Nv-YjIG8
Academic Integrity - Tips

▶ If you have to miss a quiz or a homework remember that ...

you are better off taking a 0 on an assignment worth 1-5% of your grade than risking to be caught cheating and get F in the class.

▶ If an emergency causes you to miss a midterm or a final...

talk to your instructor (perhaps you’ll be able to get an incomplete or a make-up). Sending someone to take the test for you with a fake ID will get you kicked out of UCI.

▶ Cheating is often the result of desperation and procrastination...

Work hard, do not cram for exam, and make use of all the available help (office hours, tutoring center, LARC). There is a lot of free help!
Tips from your Advisors

- Be proactive!
- Take advantage of research opportunities
- Read EVERYTHING
- Familiarize yourself with the Catalogue
- When in doubt, ask!
Tips from your Math Professors

- Do lots of problems
- Learn to read mathematics books
- Never “cram” for math exams, you should be learning the material throughout the quarter
- Seek help early if you are confused
- Learn to read, understand, and create proofs
- Save everything (old texts and notes!)
- Try to figure out how different courses material are related to each other
- Do lots of problems
- Do lots of problems
Help for Math Courses

- Instructor Office Hours
- TA Office Hours
- Mathematics Department Tutoring Center for Math 2A and Math 2B
  - Rowland Hall 592 & 594: Drop-in tutoring
  - Starts week 2 of the quarter
- Private Tutors
- Independent Study Groups
  - Undergraduate Math Study Lounge in Rowland Hall 420
Objectives
* Prepare students for university life
* Retain students in the sciences via peer-to-peer mentoring
*Expose students to scientific research
* Prepare students for graduate school/corporate careers
*Increase the number of underrepresented scientists and engineers graduating from UCI.
CAMP offers opportunity and support for students within the UCI academic community and beyond!

Visit the CAMP office to learn about Summer Research, Mentoring and Academic Excellence
Mathematical Opportunities

Show your passion for mathematics!!!

Become part of the mathematical community at UCI 😊

BE PROACTIVE, TAKE ADVANTAGE OF THE MANY OPPORTUNITIES FOR MATH MAJORS
School of Physical Sciences
Undergraduate Mentoring Program

To connects current undergraduate students with business and science professionals

- **Student Registration Period:** September 16, 2015 - October 2, 2015
- **Mandatory Orientation for Students:** October 8, 2015, 4:30-6:30 pm @ University Club

[https://ps.uci.edu/mentor/index.html](https://ps.uci.edu/mentor/index.html)
Research opportunities on campus

**UCI LEADS**

**Math199**: reading course or research work, for credit (3rd and 4th yr, after taking core classes on the topic)

**UROP and SURP**: [http://www.urop.uci.edu/](http://www.urop.uci.edu/)

**MCBU** - Mathematical and Computational Biology for Undergraduates
Department Events to Celebrate Undergraduate Research

A panel of students share their research experience...

And present their results.
Step 1: Take Math 113A in Fall 2015

Step 2: Apply for paid MCBU Summer Research Experience
MBCU
(Mathematical and Computational Biology for Undergraduates)

- 8 week summer research experience
- Designed for students in mathematical biology track
- Example of research topics: Tumor Growth, Huntington's Disease, Distribution of Eelgrass in the Newport Bay
- 12 undergraduate participants fully funded by grant
- 6 additional participants
- Teams of 2 students
REU: 4 week programs focused on a single research topic under faculty guidance with small group of great students.

Most REU programs pay travel, room and board, and a stipend.
Math 194 – Problem Solving Seminar

Fall 2015, Thursdays, 7:00-8:20 pm, RH 306
Pass/No Pass grading. 2 units credit.

Everyone is welcome to the training sessions, whether or not you are enrolled for credit. If you like solving problems it should be fun. If you want to take the Putnam exam (and who wouldn't?) this will be good practice.

Putnam Exam

Saturday December 5th, 2015, 8-11 am and 1-4 pm, in RH 306
Contact Prof. Rubin at krubin@uci.edu to sign up.

If you take Math 194, you have to try the Putnam exam and you are automatically signed-up for the competition.
If you do not take Math 194, you can still take the Putnam exam, but you must sign-up by October 5th.

More info: http://www.math.uci.edu/~krubin/194/
One talk per month.

Learn about interesting mathematics outside of the classroom.

Meet other math majors.

Free pizza!
`Baserunner's Optimal Path’
`Mathematical Modeling of Color Categorization in Humans’
`Aperiodic Tilings’
`Graph Coloring and The Lonely Runner Conjecture’
`Einstein on the Circle’
`Using Math to Fight Terrorism’
`Topological Optimization in Engineering Designs’
`Understanding the Thurston model of hyperbolic spaces: Fun with taping triangles together’
Multi-scale molecules and all-or-none responses to cellular communication’
`A Surreptitious Sequence: The Catalan Numbers’
`Really Fast-Growing Functions and the Mathematics of Computation’
`Should we vote on How we vote?’
`Can Zombies do Math?’
`The Probabilistic Method’
Anteaters Mathematics Club

◆ Club for undergraduate math enthusiasts.
◆ All are welcome at the weekly meetings.
◆ Club activities include math talks, game nights, movies, conference attendance, volunteer opportunities, math problem sessions, study groups, advising sessions, etc.

http://www.math.uci.edu/math-majors/anteater-mathematics-club
https://sites.google.com/site/anteatersmathclub/

MONDAY, 5-6pm, in NS2 1201
UCI ANTEATER MATH CLUB
Tentative FALL QUARTER SCHEDULE

- **WEEK 0:** ANTEATERS INVOLVEMENT FAIR
- **WEEK 1:** GET TOGHETER (puzzle, games, ice breakers)
- **WEEK 2:** ACTUARIAL WEEK (networking event, career oanel)
- **WEEK 3:** MATH TALK by UCI math prof/grad student
- **WEEK 4:** UNGRADUATE RESEARCH CELEBRATION (talks by math undergrads)
- **WEEK 5:** FUN INTERACTIVE MATH WORKSHOP
- **WEEK 6:** SOCIAL
- **WEEK 7:** MATH TALK
- **WEEK 8:** CAREER PANEL
- **WEEK 9:** MATH TALK by UCI math prof/grad student
- **WEEK 10:** STUDY BREAK
UCI CALTEACH CLUB

For students interested in a Teaching Career

http://calteachclub.blogspot.com

Interested in teaching? Contact Martha Martinez <mgmart@uci.edu>
UCI Actuarial Society

For students interested in a career as an Actuary

- Tailored personal plan (4-year for freshman) for my actuarial career
- FREE access to study materials for Actuarial Exams
- Training sessions (mock interview, resume critics, etc) with officers
- Access to speaker events with actuarial firms
- Comprehensive network of students and alumni with a similar passion
- Job and Internship Opportunities

URL: http://www.clubs.uci.edu/actuarialsociety/
Contact: Richard Laux (actuarialsociety@uci.edu)
Save the date:

Actuarial Career Panel

- What: UCI Actuarial Society & Anteater Mathematics Club Actuarial Career Panel
- When: Wednesday **October 7**, 6 to 7:30PM
- Who: 5 professional Speakers addressing 40~60 students
- Why: To educate student about the actuarial field
- Where: NS2 1201
Pi Mu Epsilon (PME)

- Honors Society for Mathematics Majors
- UCI chapter opened in Spring 2014
- By invitation only (Junior and Seniors with high Math GPA)
Attend Mathematics Conferences

- UROP symposium
- Math Fest
- Joint Mathematical Meeting
- Local MAA conferences
- Pacific Coast Undergraduate Math Conference
- *and more...*
Would you like to go to a summer program and be paid to study mathematics? Do you know what mathematical research is? Would you like to be a College Professor? How about a successful career in the private sector? If you are a mathematics undergraduate student and wonder what you can do to boost and enhance your career, join us for this one-day workshop..
Volunteering Opportunities

Help out proctoring the Regional Competition (Feb.) and the State Competition (March)
Volunteering Opportunities

CAMPUS VISITS for disadvantaged Middle Schoolers

- Do fun math with them
- Tell them about college

Prentice, Villa Fundamental, Lathrop Intermediate...
Volunteering Opportunities

MATH CEO
Community
Educational
Outreach

Engage students in fun (and challenging) math investigations
Share your college experience during family workshops

Reach out to underprivileged students in the Santa Ana community, and their parents

Or, you may help with
- website design
- photography
- record keeping, etc.
24 MATH CIRCLES for underprivileged students

- Wednesday 2-4pm in NS2 1201
- Students work in group and discover exciting math

You may volunteer just once per quarter, or for all meetings....

Students interested in volunteering for all the FALL meetings can enroll in MATH 192, get pedagogical training and fieldwork experience, and Earn 2 credits.
STAY TUNED!

Pay attention to the emails from
- MICHAEL VO
  (undergraduate program coordinator)
- PS STUDENT AFFAIRS OFFICE
announcing exciting opportunities!
Anteater Involvement Fair

To learn about several campus organizations, including
- The UCI Anteater Mathematics Club
- The UCI Actuarial Society

Aldrich Park
Today: 11am - 3pm
Questions?

PLEASE Don’t be shy!!
This slide presentation will be available for your review on our Math Department website.

THANK YOU!