

Undergraduate Mathematics Student Orientation – Transfer Students

Department of Mathematics, math.ucsd.edu
UC San Diego, students.ucsd.edu

2017-09-26

Department of Mathematics advising

- To ask quick questions, drop off petitions, pick up add cards:
Derrick Hwa or Holly Proudfoot (both at APM 7409)
- Coursework issues, choice of major, careers, graduate school, other:
Kelly Guerriero (APM 7408) or Jeffrey Saikali (APM 7431)
- Advising walk-in hours normally posted at math.ucsd.edu by Week 2 of quarter. (Note: Walk-in hours subject to change.)
- For short, simple questions, you can use Virtual Advising Center (vac.ucsd.edu) or email mathadvising@math.ucsd.edu. Always include your full name of record, PID, and major when emailing us.
- UC San Diego is a huge campus with lots of support of various kinds. If you do not know where to turn for help, contact us.
- ***Come to advising sessions prepared. Read in advance anything relevant to your questions/problem. Bring your questions written on paper. Listen carefully and take notes. Follow through on our advice.***

For all 8 Department of Mathematics undergraduate majors

- Our majors' curricula require entire MATH 20 sequence. (Exception: Joint Major in Mathematics and Economics excludes MATH 20E.)
- MATH 20F ("Linear Algebra") renumbered MATH 18 in 2016 Fall
- All 8 majors need MATH 109 ("Mathematical Reasoning")
- We recommend taking MATH 20C and 18 soon so that MATH 109 can then be taken. (20D and 20E are *not* prerequisites for 109.)
- All majors need at least one real analysis course and/or one abstract algebra course. MATH 109 is prerequisite for these.
- Some courses from outside mathematics department that you want counted toward requirements of your major will require petition

Curricula

- Official curriculum for each major offered by Department of Mathematics is provided in UC San Diego General Catalog:

catalog.ucsd.edu

- Get familiar with your curriculum as soon as possible
- When you apply to graduate, your application will be approved only if you have met all curriculum requirements for your major in the academic year that you started at UC San Diego or later revision if new requirements work in your favor

Department of Mathematics undergraduate programs, degrees, major codes

"Major in Mathematics" (B.S.; MA29), also known as *pure mathematics*

"Major in Mathematics—Scientific Computation" (B.S.; MA34)

"Major in Probability and Statistics" (B.S.; MA35)

"Major in Mathematics—Applied Science" (B.S.; MA31)

"Joint Major in Mathematics and Economics" (B.S.; MA33)

"Major in Mathematics—Secondary Education" (B.A.; MA32)

"Major in Applied Mathematics" (B.S.; MA27)

"Major in Mathematics—Computer Science" (B.S.; MA30)

"Major in Mathematics" (B.S.; MA29), also known as *pure mathematics*

- Intended to help prepare for graduate-level study of mathematics
- Students can personally shape curriculum by taking 6 to 9 four-unit, upper-division mathematics electives of their choosing
- Choose electives thoughtfully, not randomly, not according to what is easiest, not according to whatever fits your schedule or that will simply allow for soonest graduation
- At least 2 courses in each of abstract algebra and real analysis required.
- Advice: If you plan to go to graduate school in mathematics, take both 3-quarter rigorous sequences in abstract algebra (MATH 100A-B-C) and in real analysis (MATH 140A-B-C)

"Major in Mathematics—Scientific Computation" (B.S.; MA34)

- Combines pure mathematics with computing methods for solving and optimizing scientific problems
- Required: Variety of courses in linear algebra, real analysis, numerical analysis, optimization, scientific computing
- Can take up to 3 four-unit, upper-division courses in approved scientific computational area(s) from other department(s) in sciences or engineering

"Major in Probability and Statistics" (B.S.; MA35)

- Introduces students to probability, statistics, numerical analysis
- Required: Variety of courses in linear algebra, real analysis, numerical methods, probability, mathematical statistics, computational statistics, scientific computing
- Can petition for up to 2 four-unit, upper-division courses in approved applied mathematical area(s) from other department(s)
- Advice: For students wanting to go to graduate school in probability/statistics, taking additional coursework in real analysis, numerical analysis, and programming is recommended
- Transfer students typically must take MATH 109 and MATH 180A in first fall quarter, otherwise graduation in 2 years impossible

"Major in Mathematics—Applied Science" (B.S.; MA31)

- Can be thought of as joint major in mathematics and scientific field(s) of student's choice such as physics, engineering, computer science, economics, management science, cognitive science, chemistry, biology, biochemistry
- Required upper-division mathematics: 7 four-unit courses including linear algebra, real analysis
- Required upper-division science: 7 four-unit courses from 1 or 2 other department(s). At least 3 courses must have calculus as prerequisite.

"Joint Major in Mathematics and Economics" (B.S.; MA33)

- Designed as foundation for graduate study in economics
- Comparable major (EN28) exists in Department of Economics. Difference between MA33 and EN28 is which department your advisors are in and which department you receive general email from. (Example: We mail information about employment/internships, scholarships, department presentations, etc. only to students in mathematics department.)
- Required: 7 four-unit, upper-division courses in mathematics; lots of choices
- Required: 7 four-unit, upper-division courses in economics; some choices
- Need total 15 four-unit upper-division courses, with minimum 7 in each of mathematics and economics

"Major in Mathematics—Secondary Education" (B.A.; MA32)

- Provides foundation for becoming high school teacher
- *Caution: This major/degree alone will not qualify you to teach in California secondary schools*
- Contact UC San Diego Department of Education Studies for more information on teaching: www.eds.ucsd.edu
- For full details on qualifications to become high school teacher in California, go to California Commission on Teacher Credentialing:
<http://www.ctc.ca.gov/credentials/teach-secondary.html>

"Major in Applied Mathematics" (B.S.; MA27)

- Students take upper division courses in real analysis, linear algebra, and in at least two of these areas: probability, statistics, numerical analysis
- Can take up to 12 units of upper-division applied mathematics coursework outside Department of Mathematics if approved via petition

"Major in Mathematics—Computer Science" (B.S.; MA30)

- Major designed as preparation for graduate school in computer science, not as equivalent to undergraduate degree in computer science
- Students learn some programming skills required for computer science, but emphasize mathematics behind problems for which computing techniques are typically useful

Choosing a major

- Do not select a major because you assume it is interesting, or you find it interesting on elementary level, or you found subject easy in prior schooling
- Choose an undergraduate degree major (1) that you are intellectually suited for, (2) whose subject you are passionate about, (3) and that will help you attain your career aspirations based on a reasoned, realistic examination of prospects for someone in that major with your GPA and other accomplishments
- Many university undergraduate majors are insufficient in isolation as career preparation. Usually some practical training or research training is needed and maybe even a graduate degree (or two). Investigate all of this early in your time on campus.

Undergraduate Mathematics Honors Program

- Available to high-achieving students in any major in Department of Mathematics. Completion of Honors Program could strengthen application to graduate school.
- Qualifications for program include: Junior or senior standing; passing at least one course in abstract algebra (100A or 103A) or real analysis (140A or 142A); overall GPA 3.0+; major GPA 3.5+
- Program requires attending colloquium. Also honors thesis (completed over 2 quarters under faculty supervision) to be presented at student conference or on other suitable occasion.
- Students in Joint Mathematics and Economics majors must also take economics honors course

For full details on Honors Program:

<http://www.ucsd.edu/catalog/curric/MATH-ug.html>

http://www.math.ucsd.edu/programs/undergraduate/honors_program.php

Society of Undergraduate Mathematics Students (SUMS)

sums.ucsd.edu

Department of Mathematics advising presentations

With about 2500 undergraduate mathematics students, various presentations are planned for academic year that offer efficient group advising. Examples:

- (1) Graduate school: Its purpose, who should apply, how to apply, etc.
- (2) Non-academic career planning
- (3) Guest speakers from industry (for recruiting or information-only events)
- (4) Course planning
- (5) How to achieve academic excellence
- (6) Advice on effective learning, studying, remembering
- (7) Group advising on majors in Department of Mathematics

These presentations contain invaluable information. Watch for electronic and paper notices and plan on attending!

Advice: When you see/receive notices about department presentations or other events important to your academic progress, make a note on a calendar rather than assuming you will remember to attend.

Official university communication

- Students are responsible for regularly and frequently reading and attending to official communication from university officials:
 - Department advisors, college advisors, college deans, assistant deans
 - Faculty members
 - Administrators and their staff members
- Although some mail may not interest you, *you still must regularly and frequently read and attend to official campus communication*
- When communicating, (1) include your full name of record (not an abbreviated name, nickname, or name you gave yourself) and PID, (2) address the addressee by name, (3) use complete sentences and proper English to describe your situation, (4) be honest and responsible, and (5) express appreciation when someone assists you.

Making the most of your time at UC San Diego

- Regularly, punctually attend all lectures and discussions; no leaving early. Do not get distracted by personal electronic equipment, daydreaming, etc.
- Before lectures, spend 15-30 minutes reading last lecture. Keep up to date on homework. Before discussions, review homework; bring questions.
- Take detailed notes (even if topic is easy) in lecture/discussion and use them when studying
- Come to discussions prepared: Complete all homework (or at least have made best effort on problems); review homework; bring questions
- Use faculty and teaching assistant office hours to discuss theory, homework problems, graduate school, careers, and so on
- Now is the time to be looking at how you can be preparing for your after-graduation path. What professional relationships should you be building? What research or practical work should you be engaging in while you are an undergraduate student?
- Dine with a Professor and Coffee with a Professor Programs: See your college Student Affairs office